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ComputerWeekly

Thursday, February 2, 1984

UK set for world lead in schools software

by John Kavanagh
THE government is to launch a multi-million-pound push to develop software for secondary schools, which could establish the UK as a world leader in educational software.

The scheme, to be announced by the Department of Trade and Industry in March, will run for two years. It will cover secondary schools only. The budget has yet to be settled, but it will be less than the £20 million the Department spent on putting microcomputers in all the UK's 5,500 secondary schools and most primary schools.

"This should give the UK the world lead in educational software that it already has in educational publishing," says Douglas Eycions, director-general of the Computing Services Association.

Microcomputer firm Sinclair Research agrees. "There's enormous potential," says a company spokesman. "The problem is that no other country, certainly in Europe, has anything like the government support for micros in schools that we have here."

The government money will go



NEWELL... "Collaboration is now happening."

OAKLEY... "Laid down ground rules."

Alvey offers fair shares

not to software firms but to schools. "The schools know what they need, so this is the best way," says Eycions.

"Schools are notorious for copying books and music and so on, so there must be a way of solving

IBM aims to flood UK schools - see page 2

the software piracy problem."

The Department recognises this problem in its proposals. One solution is for a software firm to sell a master copy of a product to a local authority, plus the right to make a specific number of copies.

The government plan is a response to widespread criticism of its original scheme of putting computers in schools. Last month the national ITMA project - Investigations on Teaching with Microcomputers as an Aid - questioned the teaching value of many programs, saying they were little more than games.

ITMA director Dr John Conpland says: "We've all had the naive idea - typified by the government's attitude - that all the schools needed was equipment."

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The government money will go

IBM cuts cost of 308X series

Digico goes into receivership

DIGICO, the UK mini and microcomputer maker, has slipped into receivership despite the efforts of systems house Optim. Digico lost over £1 million in 1982 and made it known last October that it was seeking to merge with another company. In November Optim, which has grown by acquisition since its formation from Monotype Communications in late 1982, bought Digico's maintenance business. Optim's managing director Mike Burden says that but for the insolvency of Digico's bankers Optim would have taken on Digico and its debts. It is in the hands of receiver Peat Marwick Mitchell and Burden plan to make an approach.

PO automation

THE Post Office is expected to announce this week the multi-million pound customer automation plan for its 22,000 main and sub-branches. Two separate invitations to tender are expected, one for a central mainframe system into which all Post Office functions will be fed, and one for a network of terminals to be installed in all the branches.

Japan ups cash

JAPAN has doubled spending for the third year of its 10-year fifth generation project. Last year it was \$7.5 billion; next year it will be \$12.2 billion (£15.3 million). The programme centres on the Institute for New Generation Computer Technology (ICOT), which aims to produce computers with a level of artificial intelligence. Japan's total expenditure over the 10 years of the plan is put at \$600 million. In Europe, the Common Market's corresponding R&D programme, held up by the

ECC cash crisis, aims to spend £900 million over five years, while the UK's five-year Alvey programme has a budget of £350 million.

Receiver called in

COMPUTERS for All, the London-based distributor for home microcomputers, has gone into receivership. Debts are estimated to be over £400,000. Sinclair distributor Prism claims to be owed a five-figure sum and a spokesman for BBC micro maker Acorn confirmed that the company was owed "a substantial six-figure sum."

Lord Orr-Ewing, secretary of the Lords group and chairman of Air Calls' Cellular Radio consortium, says that representations from TEMA and Beta, the Business Equipment Trade Association, have produced amendments to the Lords bill.

The Bill had an embarrassing passage in its second reading in the Lords last month when even the Lords group and chairman of Air Calls' Cellular Radio consortium, says that representations from TEMA and Beta, the Business Equipment Trade Association, have produced amendments to the Lords bill.

Smuggling charge

THE case against Dorset computer firm, directors Bryan Williamson and Christopher Jackson, accused of trying to import illegal PDP-11s to Crowthorne, has been adjourned until April. Poole magistrate refused to release passports but increased bail to £10,000. The £10,000 cash. The two accused are directors of Decatec, a British programme, held up by the

CCTA makes autonomy promise

From front page

The key role for the centre to play is in standards," he says, "and in long range thinking and planning. We do more than provide evaluation and advice; we attempt to see what opportunities there are as they come up in a fast moving situation where technical and management issues are mixed."

O'Connor says that a detailed report on the role of the agency has been drawn up by the CCTA's director Paul Freeman, and will shortly be published.

O'Connor, who was Sir Michael Edwards' personal assistant at British Leyland, is enthusiastic about the Office of the Future project set up by the Department of Trade and Industry to encourage the development of office automation by establishing over 20 pilot projects at a cost of about £5 million.

He says that a report on the project and also two further CCTA funded projects in the Ministry of Defence and the Department of Health and Social Security will be published shortly. That is entitled Management Aid Trials - lessons for government.

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In

Government backs out of cable franchises

by Philip Hunter
THE government has backed away from giving interim franchises to the 11 consortia it has chosen for the first cable television services.

The consortia were offered interim franchises in December 1983 so that they could begin work on cable TV systems before the Cable Television Bill is passed later this year, but the government has run into legal problems.

Now the government has offered the 11 consortia letters of intent instead, promising them full licences when the Bill finally becomes law later in the summer. But this has not pleased some of the consortia, which do not believe the promise of future licences will be enough to bring in the investment needed immediately for work to begin on cable TV systems.

Some of the proposed cable TV networks will cost £30 million to build and the idea of the interim licences was partly to assure potential investors and existing institutional shareholders that there would be no obstacles to the service.

Now investors are likely to wait until they see details of the final licences before committing their cash. This means a delay of six to nine months on development of cable TV, and embarrassment for the government, which wants cable TV as quickly as possible.

The problem is that the government lacks the legal mechanism to give the formal approval for cable TV services until the Cable Bill gets its Royal Assent.

A spokesman for the Department of Trade and Industry says that some of the consortia have been over-optimistic about interim licences being awarded quickly. "It was always recognised that it would be some time before negotiations are complete," he says.



DAVIGNON... Will argue that Esprit be disentangled from a crisis.

UK urged to give Esprit go-ahead

by John Riley
THE Prime Minister and the Treasury are coming under increasing pressure to stop holding up Europe's unique co-ordinated response to Japan's long-term project to dominate computer technology.

European IT leaders are lobbying the government, concerned that there will be a gap between the end of the Esprit pilot projects and the beginning of the £80 million five-year programme itself.

The architect of the Esprit project, Viscount Etienne Davignon, who until now has steered the project through the European bureaucratic machine in record time, will forcibly argue that Esprit must be disentangled from the wider EEC budgetary crisis when he meets ministers in London next Monday.

There have been increasing reports that the Treasury has not grasped the importance of IT and that the Department of Trade and Industry has a hard time trying to pass the message across.

Davignon encountered a similar attitude when he made a similar

mission to Germany recently, where the chancellery and research ministry were in favour of Esprit, but the treasury was not. That visit was successful and, according to an EEC official, "half of the job is happy with the delay."

The Japanese fifth generation programme is working effectively and has achieved its first result; it is important that we should have embarked on the Esprit project at this time for the Japanese interims conference this November.

Brian Oakley, head of the Arts Directorate, says that there will be no delay to the Esprit programme provided that the matter is resolved by February 28.

"If it goes on longer it will be serious," he says. "British industry hasn't properly realised what there has been a delay, as not very much is happening as far as they're concerned. It has been told the bids will be invited in March, but if that doesn't happen then, it will get concerned."

The Esprit pilot projects, which got underway last summer, are fully funded until September, and the Commission says it will "try as hard as possible to ensure there is no disruption to good pilot projects".

With this scheme IBM currently

(Eurobit), says: "We're very

happy with the delay."

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Directorate, says that there will be no delay to the Esprit programme provided that the matter is resolved by February 28.

"The problem is that although both the technical details and funding for the Esprit programme are agreed, it cannot proceed until the German and the UK governments give the go-ahead. Until now they have tied it with the wider financial problems the Committee of Ministers.

The final chance to resolve the crisis is at the research ministers' meeting on February 28. If that fails, continuity will be broken and the programme will start grinding to a halt.

"Senior industry executives are pressing the government not to be too pig-headed over this," says the newly appointed director-general of the Business Equipment Trade Association, Richard Palmer.

Günther Möller, chairman of the European Association of Manufacturers of Office Machines and Data Processing Equipment

gives software firms sales leads to follow up with their packages and IBM hardware. If an order materialises the software firm gets around 10% of the hardware value.

"The current arrangement is good, but we need proper OEM-type agreements to make a real breakthrough," Robson says.

Whatever schemes IBM introduces, they spell trouble for most of the rest of the industry, Robson believes. Even big computer manufacturers could have "a limited life" and their future could depend on them finding gaps in the market. An exception will be the number two company, Digital Equipment, which is well established in the third party market, Robson says.

Mike Brinsford, a director at another IBM systems house, Data Logic, does not agree with BIFU's analysis. According to a spokesman: "The new system is in addition to manual once for town clearing. There is no immediate prospect of people losing jobs because of Chaps."

Chaps will certainly affect our members in the City, and now the technology is there it could lead to same-day clearing nationwide, so we obviously have more problems to follow."

BIFU has told the banks it is prepared to support the introduction of new technology, providing a new technology agreement is in place.

"The banks have been fore-runners in using computers and this has led to more employment, not less. And there have never been any redundancies due to computerisation," he said.

A BIFU spokesman said: "It is difficult to get precise figures on how Chaps will affect the number of messengers, but in the long-term it will mean fewer jobs even if nobody is made redundant."

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It also wants a shorter working week to help protect employment levels.

When Chaps starts operating today it will only clear cheques for between £10,000 and £100,000. After one week this will rise to £10,000-£1 million, and after two weeks all cheques over £10,000 will be processed by Chaps.



Jobs are on the line as Chaps goes live

by Nuala Moran
UNION officials have warned of large job losses as Chaps, the city's computerised, same day cheque clearing system goes live today (Thursday).

First at risk are the 5,000 messengers who carry cheques around the City by hand.

But the Banking Insurance and Finance Union (BIFU) feels the threat to these jobs is just the tip of the iceberg. It says the staff who process the cheques could also be affected.

At first the system will deal only with cheques for over £10,000, but BIFU says that if this ceiling is lowered many more jobs will be threatened. At a later stage the system could be used as the transmission medium for other services, posing further job security problems.

The Banking Information Service, which represents the main banks, does not agree with BIFU's analysis. According to a spokesman: "The new system is in addition to manual once for town clearing. There is no immediate prospect of people losing jobs because of Chaps."

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Company shake-up is brewing at Systime

by John Kavanagh

A MAJOR international shake-up is imminent at UK systems firm Systime, including the sale of its subsidiaries in South Africa and the Irish Republic and the financial restructuring of companies in France and the Netherlands.

At the same time the company is putting new emphasis on selling its equipment through third parties.

This year it expects nearly a third of its hardware sales to come through systems houses and dealers.

Systime is also looking outside its traditional main supplier, minicomputer leader Digital Equipment, for a new top-end processor (see page 4).

The heads of some of the overseas subsidiaries were at Systime's

Leeds headquarters last week. The South African company, formed in 1979, has around 80 staff. It started very successfully, passing its first-year target in just six months, and its growth was expected to top 70% a year for three years at least. But this week a Systime source says it is no longer so successful.

France and the Netherlands are

now the successful operations outside the UK. The Netherlands company has 33 staff and a turnover of around £2.5 million.

Systime is tight-lipped about its plans. But sales and marketing director, Mike Briercliffe, says: "We intend to expand overseas with the assistance of third parties."

Briercliffe was until recently

break down, leaving them high and dry.

In December McCormack was sued for "guilty of wilful and malicious misappropriation of software" and ordered to pay damages of \$2.3 million plus \$300,000 legal costs. It was also told to pay over \$500,000 to another licensee, Software International.

McCormack's appeal to the Supreme Court needs the court's special permission to be heard. The company claims it would be "irreparably harmed" by the ban.

But ABC lawyers feel they have won that case and are now turning their attention to RTZ.

ABC president Vernon Ruskin says: "We have been offering to settle with them since 1981 but we heard nothing from them. We made them an offer which they have not accepted and now it has expired. They made a lot of profit and we never got any royalties."

RTZ sales manager Mark Bennett says the withdrawal of Fast would not hurt the GL+ product. A new system has been under development to replace Fast, and the court ruling just speeded up the process, he says.

RTZ sued for sale of software suite

by George Black

RTZ Computing Services is being sued for selling a popular accounting system which has been the subject of a court battle in the US.

RTZ is the UK distributor for McCormack & Dodge's GL+ general ledger package, which incorporates the Fast financial spreadsheet and report writer.

But the program author of Fast, the program author of Fast, needs the court's special permission to be heard. The company claims it would be "irreparably harmed" by the ban.

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Meanwhile McCormack says it will appeal to the Washington State Supreme Court to try to get the injunction lifted. It has been prevented from using the Fast module from the beginning of this month.

McCormack, software writers are working to bring out a replacement for the system by September, in case negotiations with ABC break down, leaving them high and dry.

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on December 21 because the Inland Revenue would not commit itself to a policy of no redundancies with the computerisation of PAYE.

In court, eight members of the IRSF argued that the introduction of computers had changed their job so much that they were now computer operators rather than tax assessors, and so the Inland Revenue had broken their terms of employment.

But Mr Justice Walton said it was not the job that had changed, only the way it was done.

The ruling will have repercussions for the other Civil Service trade unions. Bill McCrory, Inland Revenue national officer for the Northern Ireland, South Africa, South America, Australia and New Zealand branches, told the court: "This is a major decision for the Civil Service."

The national executive of the Inland Revenue Staff Federation (IRSF), has not decided whether to appeal against the ruling. "This ruling has implications for members throughout the Civil Service. We have tried to be as constructive as possible in our approach to new technology, but may change if the government decides to use it to bring in more computers without consultation."

According to the IRSF the new round of talks with Lawrence Airey of the Inland Revenue was initiated by Tony Christopher, general secretary of the IRSF, before last week's ruling was known.

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Storage shelves mainframe bid

by Keith Holder
DELAYS and cost overruns have halted plug-compatible manufacturer Storage Technology's bid to become a mainframe manufacturer.

The company has abandoned

development work on its planned 3083 class IBM plug-compatible CMOS processor, a move that will result in a considerable write off for the fourth quarter.

The company admitted that about 400 workers at its Santa Clara research centre have been made redundant, though about 100 have escaped the axe and will continue work on other projects.

UK managing director, Brian Molloy, says that work was halted for two reasons.

"Although the project was running on time last year, it suddenly became apparent that a six to 12 month delay would be imposed by a test programme," he explains, adding: "There was no guarantee that the test would have been completed, even in that time."

He says IBM provided the second setback by launching the 4381. This came in at a lower price than Storage Technology had anticipated and a better "cost per mfp".

"This made the market more competitive, and less attractive for us," says Molloy. "The managing director believes

that having failed with this venture, Storage Technology could opt for a BASF style approach, and buy in processors from one of the established plug processor manufacturers, like Hitachi of Fujitsu. "In any event, we will proceed with caution."

Molloy sees the company's strength remaining in its storage systems. Its 80 product, a plug compatible system to compete with IBM's 3380, is now being shipped in the UK, and is going down well with customers, he says.

Future hopes ride on the company's optical disc storage system. Key personnel have been appointed in the UK to market and support the system, which is due for release by April, and some key customers are being approached to act as reference sites.

Although the product is said to have a lead over other optical systems, Molloy thinks this will have been eroded, together with initial market demand, by the end of 1985. He also thinks that the company will have to come up with another innovative product by that time.



ELSDEN . . . "We have price and power advantages over Vax."

IBM puts users in the picture

by Philip Hunter

UK MAINFRAME users can now look at stored images of documents at a terminal after making digital "photographs" of them.

IBM UK has announced a £4,800 enhancement to its Scanmaster document reader for this to be done. The facility will be available to all IBM mainframe users running under MVS or VSE operating systems, so long as they also have the DISCOS distributed office software, which controls text transmission between different processors and terminals.

In addition users will need the Scanmaster units costing £8,000 to make use of the new image view facility.

Smith says the standards work will be a consolidated UK response to competition from the multinationals.

That response is urgently needed, according to the National Economic Development Office report.

It shows that the UK market for office microcomputers and business systems was worth £100 million in 1982 - and UK firms met less than one third of the demand.

The electronic typewriter and word processor market was worth £150 million - and UK output was £13 million.

Brunel and Metal Box unite for CAD/CAM

by Keith Holder

BRUNEL: University and the giant Metal Box have joined forces to explore low-cost computer aided design and manufacture (CAD/CAM) techniques for precision toolmaking.

The three year project is being funded, to the tune of £175,000, by the Teaching Company Scheme (TCS) which is backed by the Science and Engineering Research Council and the Department of Trade and Industry.

A spokesman for Metal Box says no one else is known to be involved in a similar project, and that the results could have a commercial value. No decision has been taken yet on how any commercially viable systems would be marketed, or how the profits from such systems would be divided.

This includes a feasibility project, already underway, to adapt the university's existing CAD/CAM techniques to run on conventional software packages.

The project provides work for two researchers, who will be responsible for a second part, next year.

Guided by Dr Tony Medland, Dr Glen Mullineux and Andrew Jones, all from the university's Design Applications Group,

Mullineux says that work was confined to looking at current working practices at present, but would progress to setting up equipment and applications tests in about six months' time.

The university is interested in producing an effective CAD/CAM package that can run on a microcomputer, which would have applications beyond the scope of Metal Box's requirements, Mullineux says.

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For its part Metal Box hopes to fit in with a pool making procedure, fit in advance of anything that the moment.

SALES BRIEF

£2m contract to automate the news

W. H. SMITH has gone to a Nottingham-based DEC systems house for a £2 million system to computerise its wholesale news division business in England and Wales. Computer Systems and Products will supply Smith with its Newskey software and 50 DEC Vax computers, ranging from the MicroVax to the Vax 750 in a contract spread over two years.

CSP has already sold its Newskey news distribution software to other wholesalers, including Surridge Dawson in a £700,000 contract.

Apollo for poly

TEESSIDE Polytechnic has picked Apollo Computer UK to supply a networked system comprising 16 32-bit DN300 workstations, each with one Mbyte memory and 300 Mbyte disc storage, plus two DSP80 processors to control the local network. Installation will be late this year, and is to be ready for teaching 30 MSc students by January 1984.

OCR deal

SCAN OPTICS has installed the first three of five optical character reading systems in an order from Barclaycard worth about £2 million. The systems will be used to process Barclay card sales vouchers, with a total throughput of over 500,000 documents a day when all five systems are running.

Council picks ICL

ICL has beaten IBM, NCR and CMC Microdata to a £205,000 local government order from Clackmannan District Council in Scotland. The order involves an M129 distributed mainframe computer, which will be linked to an IBM 3033 mainframe in Scotland's Central Regional Council headquarters in Stirling, for batch data transfer and interactive work via IBM's Systems Network Architecture.

Water network

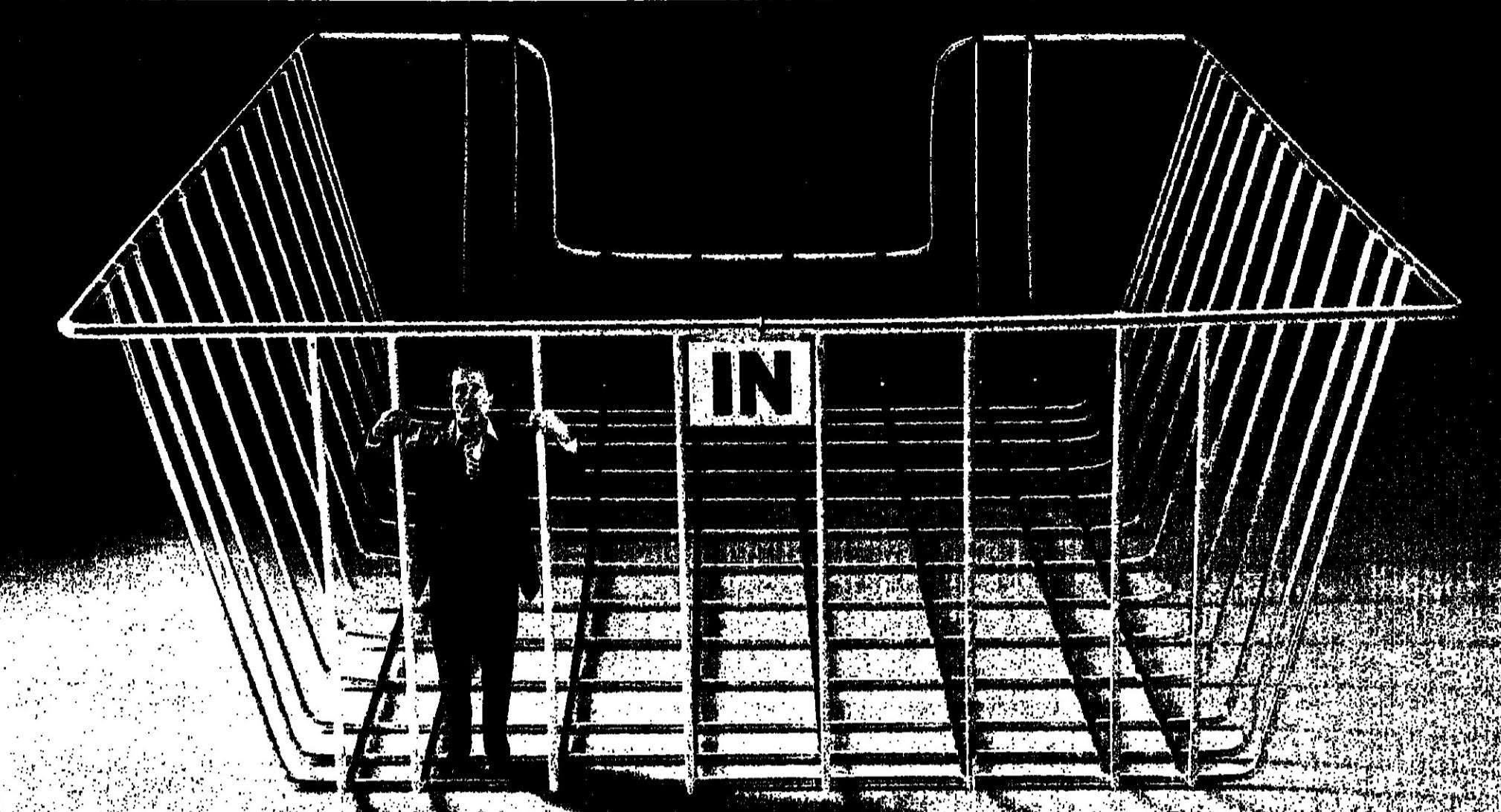
DIGITAL Equipment's All-in-One office automation system, based on Vax minicomputers, continues to sell. Latest UK order, worth £800,000, is from the Yorkshire Water Authority, and includes a distributed network of four Vax 11/750 linked to a central ICL mainframe at the authority's Bradford headquarters for office automation, stock control, data retrieval and engineering applications.

"We have a price advantage and a power advantage over the Vax," Elsdon comments. "DEC users can bring their Control Data discs with them. And with Unix their future is protected."

"DEC is strong on support but we can deal with users on a more personal level. We're smaller than DEC so we can respond quicker."

■ DEC users do not seem to share Syntime's worries about the top-end machine. "This hasn't come up formally as an issue," says Andy Wells, chairman of the Vax group in the UK.

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CW9/2

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Brunel and Metal Box have £175,000 for developing research.

CW9/2

CW9/2

Victor falls and ACT is ready

by Dave Madden

VICTOR Technologies has finally been forced into bankruptcy after creditors filed a suit against the company last Friday. Applied Computer Techniques (ACT) is set to pick up the pieces.

Victor was in trouble throughout 1983, and has been running on a cash payment basis since the autumn. But although it has cut to the bone since last August it still reported a loss of \$36.9 million on revenues of \$46.1 million in the quarter to September. The company owes some \$90 million - \$30 million to Security Pacific Bank, the rest to 1,500 other creditors, including Tandon and Multiflex.

ACT directors, including Roger Foster, flew to California to negotiate manufacturing rights to Victor's products on Sunday. Peter Oldershaw, a director of the company, says: "Victor has been in this position for some time so we were well prepared and have good stock levels. But as far as ACT is concerned demand for the Sirius I has never been better and there are rich pickings to be had - this is an excellent opportunity for us to enhance our international activities."

Oldershaw says that the negotiations were at an advanced stage, but there were other companies taking a close look - including Swire Pacific and three major US corporations.

ACT has already done a trial



PALMER... Expects sustenance from his food industry experience.

Fearful trade bodies regroup

US delays speed up Commodore in Europe

by Keith Holder

THE Commodore 64 computer, the company's bid to enter small business computer market, could be launched in Europe before it makes its US debut, according to UK marketing manager, John Baxter.

He says that rumours of delays circulating in the US are confined to that area alone and, if anything, plans to launch the computer here have been speeded up.

The problems in the US centre around getting approval from the Federal Authorities (FCC) for radio interference. This, says Baxter means taking the computer into a remote area, like the Nevada desert, for testing, process which can take time, and could hold up the computer's introduction.

Speculation that the company has not yet decided on the program package for the 64's in-built writing of financial software, or that the recent resignations of

BT awaits customers for teletex link

by Philip Hunter

BRITISH Telecom's two latest text transmission services, teletex and the packet switched service (PSS), can now be linked together. "We're ready to go when the customer come to us," confirms a BT spokesman.

But customers are not likely to come until the teletex service is also capable of being linked to BT's other text transmission service, telex, later this year.

This will be made available to the world's 100,000 teletex users, which are in the UK.

Teletex is based on the public telephone network, and GEC

Computers has won the initial £200,000 contract for hardware to control the switching.

The company will supply twin GEC 4000 computers and interface software to the first switching centres set up to handle connection between teletex and the public telephone network. Nine orders are likely to follow as teletex use expands.

At present very few people have a teletex terminal in the UK that conforms to BT standards.

This is despite encouragement by UK manufacturers to submit terminals from the Department of Trade and Industry, which set aside £4 million in March 1983 in

the form of grants to encourage

Upset contractors slam wages con

by Philip Hunter

CONTRACT programmers sometimes have to complete a two week probationary period before their appointment is confirmed, but they are normally paid for the time spent on the job, even if their work is deemed unsatisfactory.

But two contractors were recently offered a six month contract

only if they agreed to leave without collecting any pay if they failed to meet the required standard during the first two weeks.

One of the two contractors, who asked not to be named because it might affect his prospects of winning other contracts, said: "This sort of move is only likely to get people who are desperate for work."

But one managing director of one of the recruitment agencies trying to sell the contract to contractor programmers, defended the idea.

He said contractors were highly paid and most of them were aware

of the standards expected of them.

Clients naturally could not pay out for shoddy work. But the managing director, who, like the contractor, didn't want to be named, admitted that the controversial clause was not common in contracts. "Honestly, I can't see something like this becoming the norm."

He would not name the company offering the contract.

Other recruitment agencies agreed that contracts did not normally have this clause posing the threat of the sack without pay.

Roger Evans, a director of the VLI Group, said that occasionally contractors might be asked to work the first two weeks at a reduced rate if they lacked one of the skills specified in the contract. The idea was that the contractor would spend this time learning the skill.

But Evans said VLI would not expect contractors to work a two week probationary period with the threat of the sack without pay if they failed to come up to standard.

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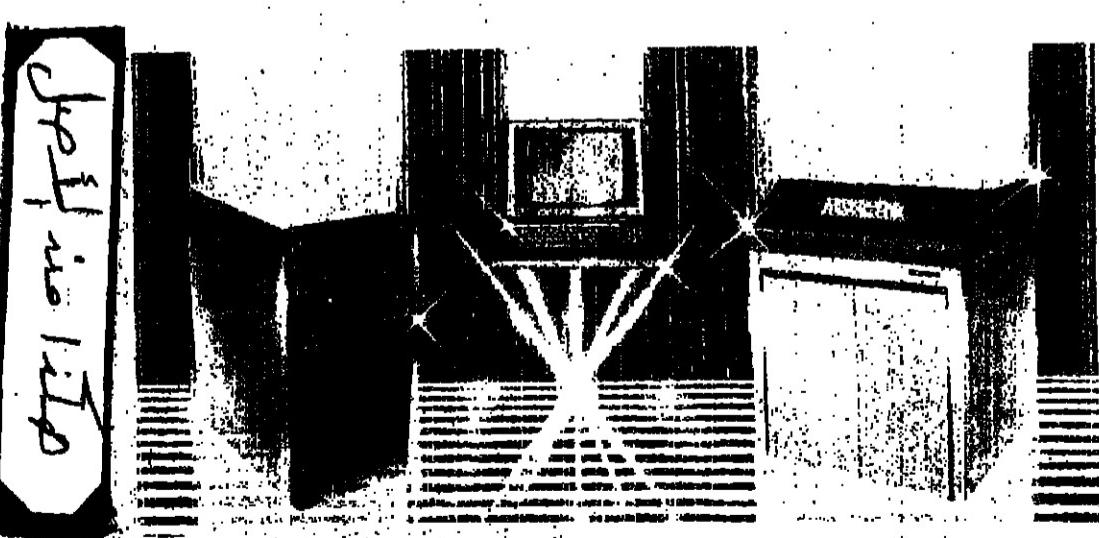
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BROCKLE... Says any charges could only relate to the original incident.



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Where computers and communications meet



HOUSTON...Discussions with international banks in London and New York, and with airlines.

Paradyne joins with the French

by Donald Kennett
US DATA communications company Paradyne has joined forces with French packet switch supplier SESA. The two have signed a manufacturing and marketing agreement and also agreed to collaborate on the development of future products.

Paradyne, much more internationally oriented than SESA, will manufacture and sell SESA packet switch products. The deal will extend Paradyne's ability to provide complete private data networks.

SESA supplied the switching equipment for France's Transpac public data network and for Euro-net. It is also bidding for British Telecom's packet switch stream enhancement and renewal contract as well as the London Stock Exchange's integrated data network (IDN), which is to be the distribution medium for all its future electronic information services.

Paradyne European product marketing director David Houston says: "We think the market for this is very strong in America,

with AT&T opening up, Europe is different but still significant. Private companies want their own networks to transpose what the PTTs are doing."

The agreement is exclusive for the US and Canada, and non-exclusive in Europe. Houston adds: "We believe we will be strongest in the market where private networks are crossing national boundaries. We are already having discussions with international banks based in London and New York and with SESA."

The company started a packet network to fill out its range, he says, because a number of its present customers for modems, multiplexers and network management systems wanted packet networks and they preferred to get the lot from a single supplier.

A complete network would cost from £400,000 to £1 million, and consist of between three and 10 packet switching exchanges, each with up to 16 lines capable of carrying data at up to 14.4Kbps per second.

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Apple hopes for pirate precedent

by Dave Madden
APPLE Computer has won what it hopes will prove a significant legal victory against software pirates in Taiwan.

Six Taiwanese computer makers have been convicted in Taipei of violating Apple software copyright. The defendants have each been sentenced to eight months in jail for copying Apple's Autostart and Applesoft Basic programs.

But Apple's legal department in Cupertino, California, is not sure if the conviction will stick. "This will be an important precedent if these people go to prison, but we've won verdicts before that have lead to nothing," said a spokesman.

Apple is afraid that the district court decision will be turned over on appeal. The defendants claim that Taiwan's current copyright laws are ambiguous and cover "printed words" and not computer software.

In January, the company lodged an appeal against a decision by an Australian judge that computer

software was not covered by copyright law. Apple had alleged that products distributed in Australia by Computer Judge were illegally copied in Taiwan. The appeal is due to be heard in March.

Apple has brought copyright prosecutions in 30 countries. Last September, it won its biggest victory against Franklin Computer of New Jersey, which built an Apple lookalike micro, the Pineapple.

Taiwan has come under increasing international pressure to be seen to be doing something about its computer piracy industry. Unconvinced reports in a local Chinese language daily paper, *Commercial Times*, suggest that Taiwan's Ministry of Economic Affairs is set to outlaw domestic and export sales of Apple II copies, whether outright fakes or so-called Apple-compatible machines.

The irony of such a move would be that it is more likely to benefit IBM than Apple. The bottom has fallen out of the market for Apple fakes, and Taiwan's imitators are switching their attention to the IBM Personal Computer.

IT'S Computastars time again. The DP Olympics are back, bigger and better than ever, with new events and the return of old favourites. Sponsored again by Computer Weekly, the UK competition kicks off in May at Barnsley.

This year there is an added attraction: the quest to find the fastest man and woman in data processing.

Other new events include a three-man (and three-woman) tug of war, which is aimed at inexperienced pullers.

Computing will be back for the real heavyweights, while more sedentary types will probably prefer the team darts.

The initial heat at Barnsley is followed by ones at Birmingham, Crawley and Finchfield.

The UK final is at its usual venue, the Alexander Stadium in Birmingham.

The Cork factory was opened in 1981. A year later, 16 of the 67 staff were sacked because of the depressed state of the European market.

Another of Rogers' "tough decisions" involved the closure of a viewdata bureau, set up at the end of 1980.

Meanwhile Modcomp's sales in Europe increased by 62% in 1983.

Modcomp has exclusive rights to sell the device for remote applications, while Southern and its distributors sell it for local applications. Southern's UK distributor PCML installed one recently in the London Stock Exchange. The remote version sells for between £58,000 and £125,000 depending on the communications capability required.

Houston says: "People like Frost & Sullivan see demand outstripping supply by five or six times over the next few years. That's why Paradyne is in there."

Chairman Karlheinz Kaske says that Siemens will increase spending on capital projects by 20% to DM 30 billion in the next five

years. Research and development spending will grow 9% to DM 3.8 billion in the current year.

Although Siemens has gone into partnership with ICL and Bull to form a joint European research institute in Munich to do basic research, the company has been criticised for its failure to react to US and Japanese competition.

The initial idea was to do sub-assembly work in Cork and final assembly at the new centre," says Rogers. "But we have the capacity in Cork to meet all our needs and

Don't miss it.

Siemens steps up research

by Dave Madden
SIEMENS AG, the West German electronics group, is making a belated effort to counter foreign competition by increasing its research and development investment.

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The 1984 DP Olympics starts in Barnsley

by Andrew Thomas

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Don't miss it.

MPs have rethink on computers in court

by George Black
MPs are expected to take a radically simpler approach to the use of computers in court when a Commons committee debates the subject this month.

The indications are that they have headed the argument of Professor John Smith of Nottingham University. He has warned that some evidence which would be unacceptable as hearsay might become acceptable by having been processed by computer - non-sensical result, according to Smith.

But Smith is optimistic that his view will prevail. "I feel fairly sure now that the new law will be changed to take account of what we have been telling them."

Another fear has been that complicated stipulations might serve as an escape clause for astute lawyers, to show that computer evidence is unreliable when other grounds of defence appear hopeless.

Interest in these two clauses in the Commons is likely to be small. MPs are likely to concentrate on the more sensational aspects of the Bill such as police powers. In the Lords, a number of lawyers may perfectly valid documents.

The clauses have not yet been re-written and the policy shift still requires the endorsement of top-level officials and Ministers. But government sources are now

decided, but it looks like a toss-up between Holland and Switzerland.

Full details, rules and an entry form will appear in next week's issue.

Don't miss it.



BROWN...More than just protocol conversions."

New Yorkers want to end mute micros

by Keith Holder
A SUCCESSFUL US package, designed to link personal computers to IBM mainframes, has been launched in the UK.

New York-based Techland Systems has set up a subsidiary in Britain, which will market and support its Blue Lynx synchronous communications range.

This uses a combination of hardware and software for terminal emulation and can be used to link the IBM-PC and XT, or plug-compatible microcomputers with any IBM mainframe, through the System 34 up to the 308X series.

Over 5,000 packages have been sold in the US in the past 18 months, some to IBM itself, says Harris Landgarten, president of the IBM 3270 terminal - which does support file handling.

Files can be transferred to a hard disc attached to a PC/XT from the mainframe, says Brown, as the mainframe treats the disc as a second printer.

Blue Lynx costs £560, though users wanting file transfer on the System 34-38 will have to spend up to £760, for add-ons.

Other options in the Blue Lynx package are business software packages, modems, printer support and line drivers.

ment programme is still awaited. But agreement is taken for granted because negotiations, which had been under way for several years, have been progressing fast in recent months.

Digital Equipment France, which has a staff of 1,500 people, now accounts for 15% of the group's activity in Europe, where it has risen from number five to number two in the DEC league.

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Prestel will link public to brokers

by Donald Kennett

THE public will soon be able to trade stocks and shares electronically via Prestel Citiservice.

Launched at the end of 1982, Prestel Citiservice has so far induced nearly 3,000 users to make an average of half a million accesses a month to its information on share, bullion, commodities, futures, foreign exchange and unit trust prices.

Two unit trust fund managers, Henderson and GT, recently started accepting trading orders via their Prestel mailboxes, and ICV Information Systems, the company that runs Citiservice in partnership with British Telecom, is holding talks with de Zoete & Bevan and two other stockbroking firms about handling instructions

from clients electronically. ICV managing director David Taylor says: "Our users were actively requesting this kind of facility. We thought the stockbrokers would say no, but they've said yes. Though technically we knew it was possible, frankly we thought it was some way off, the City being pretty conservative. We were surprised how eagerly the possibility was received."

A different rate of commission could be introduced for this type of service, Taylor suggests, since processing messages would be much cheaper than keeping a broker on the phone for about 20 minutes.

Three levels of service are available on Citiservice, including one which, for a charge of £90 a quarter,



GOODISON ... "Significant step"

Unix achieves a French break

by Jack Gee

THE French market for Unix, which accounted for only 1,500 systems in 1983, is likely to double this year thanks to the success of the Western Electric operating system as an international standard, the growing interest by users and the full scale commitment of manufacturers.

More major company users in France are demanding Unix. The State-owned Credit Lyonnais Bank has set up a team to learn about the product and is making contacts in readiness to buy source programs. The Renault vehicle firm is also showing interest.

French software service houses are also preparing for the onslaught of "super" micros under the Unix banner. CISTI, TECSE, Systec and CAP-Gemini-Sogest have set up their own study groups for this purpose.

So far the Unix environment in France accounts for only a dozen

programs. Small software houses such as Unixsys and CIL are developing and selling Unix tools for videotex applications.

The breakthrough for Unix in France lies at hand with the commitment of Bull, the State-owned computer group. Until now the standard bearer has been Thomson with its imports and domestic production of Fortune's Micromega.

The Micromega represented 700 of the 1,500 Unix systems marketed in France last year, a fair achievement, although Thomson had been working for about 2,000, which made it the biggest Unix base in the country.

Electronique Serge Dassault, the electronics arm of the Marcel Dassault aircraft group, which is now 51% State owned, has undertaken to deliver 500 Unix systems for the subscribers' complaints department of French Telecommunications.

Plot in a suitcase

by Donald Kennett

THE skill of a dishonest telex operator – and a large suitcase – were all that were needed to perpetrate a \$7 million fraud from a City bank, the Old Bailey heard last week.

Colin Hart-Leverton, prosecuting, said Laurence Tonsetti, telex operator at Credit Suisse First Boston Bank in London used his knowledge of cash movements to divert the money to the account of his partner, Colin Howard.

He sent a bogus telex message to Morgan Guaranty Trust in New York to get the money sent to the account at Israeli Bank Leumi in Geneva.

The suitcase was to carry the money away. Howard had presented himself to the bank in Geneva

saying he was an intermediary in a big business deal.

The scheme was well-timed because the telex was sent to arrive on US Thanksgiving Day. The banks were closed, so no one outside the US could check the message.

Great steps were made to remove all traces of the bogus message. But the memory of the Credit Suisse's computer was examined and the telex was found. The police were called.

Tonsetti and Howard plead not guilty to conspiracy to steal \$7 million and falsifying a telex message to deceive Morgan Guaranty Trust Bank in New York in November 1982.

The trial continues.



Improved design from British Telecom.

BT scores dishy first

by Donald Kennett

BRITISH Telecom has scored another world first with an improved design of satellite ground station antenna.

The new design will meet the requirements for international plans to position satellites closer together, so as to increase the number of geostationary orbital slots from 120 to 180.

It is based on the shape of an optical telescope built by the 17th century Scottish mathematician James Gregory, and although this type of antenna is used in astronomical research, it is more complex and more expensive to make than the more common types of dish antenna.

BT is preparing to launch its Satcom North America service with Teleglobe Canada to provide the first satellite-based end-to-end digital links across the Atlantic.

It emits a narrower beam of radiation, causing less interference to neighbouring satellites. It also has a higher signal gain and lower

wind resistance than the usual types.

BT is the first to put it into commercial service in communications. It was also first with the traditional type. Its US partners used a cat's cradle of towers and wires for their end of the link.

The prototypes of the antenna

have been built, one by Epic Precise Engineering for rooftop installation at Ealing telephone exchange in London, the other by Racial Antennas for BT International's ground station at Madley, near Hereford. They will be used with an Intelsat V Atlantic satellite and with the ECS European Communications Satellite.

CTM already has one software partner in the UK, Silan Systems of Sheffield. Silan first wrote a package for CTM's machines about six years ago and there is a user base of seven. The package is for steel stockholders and merchants.

Office seminar

OFFICE Technology (OTL) is the only UK company among five suppliers of office automation equipment chosen to address an audience of 200 users at the City Conference Centre, London, next Thursday, February 16, by the Information and Word Processing Association (IWP). The other four, all US firms, are IBM, Wang, Rank Xerox and Data General.

A paper published in IBM's *Systems Journal* last year carries a cost analysis of telex, which shows it in a good light compared with telex and the postal service in West Germany in 1981.

Transmission of a four-page document by telex is shown to cost between six and 19 US cents, depending on distance and time of day transmitted, compared with 89 cents to \$4 for a telex message of the same length and 94 cents for a letter. The 94-cent letter cost is made up of first class postage plus an average internal distribution cost which is not applied to telex or teletex.

The paper, by an IBM engineer in the US, says: "Telex has the potential to become a major force in telecommunications and to create a large business opportunity for communicating office machines. It has the flexibility to extend its current capabilities and to provide for future needs by allowing additional features, by interacting with other services, and by utilising new networks."

The three methods by which new capabilities may be added to telex, the paper says, are private protocol, national requirements and CCITT recommendations. A manufacturer or nation may create a problem of incompatibility by providing capabilities that others do not support, it adds.

But it concludes: "This approach allows truly international implementation that will benefit all users."

Germans bid for share of UK mini market

by Nuala Moran

GERMAN mini manufacturer Computer Technik Muller (CTM) has announced that it will compete for a share of the UK market. It is having talks with distributors and OEMs offering its latest machine, the CTM 9032.

The 9032 was launched in Germany last July, and CTM has sold 96 systems so far. Although it claims this was the first German 32-bit general business applications, in the UK it is aiming strictly at vertical markets.

Klaus Lautermann, CTM export manager says: "We want to capture 5% of the UK market in the £10,000-£15,000 range. This is a big market and our strength will be the integrated system we offer."

"We have budgeted DM500,000 for advertising and support over the next three years. With this and the 9032 we have a good chance of cracking the UK market."

CTM, based in Constance, West Germany was set up in 1972. It has 529 staff including 110 on research and development. Total sales last year were about £40 million – an increase of 12% on the previous year. About £25 million of this was in domestic sales.

The company's biggest export markets are Austria, Switzerland and France, and it is also represented in Denmark, Belgium and the Netherlands. It sees the UK as its next move in expanding across Europe.

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Hand-holding service

SPECTRAVIDEO Ltd has formed an industry group to service the needs of small high technology companies.

Deloitte has brought together expertise from its main audit and management consultancy division into a specific unit to address what it sees as the special problems of young technology companies – typically high growth and under-capitalised.

Another reason, as chairman Bryan Blackbourn explains, is because the changing need of these companies means that they have a greater demand for a "tailor-made" service.

John Petrie, a member of the group who is based in Reading, says that it was designed to provide a "comprehensive service to the small high technology company to pull them together and hold hands".

Intelligence deal signed with US firm

SPI International has signed an OEM deal, to cover Europe, with the US maker of hardware for artificial intelligence application, Machine Intelligence. Under the agreement, SPI will develop the US company's VS-100 image analysis tool for process control applications such as counting the numbers of parts passing on a conveyor belt.

The work will be done at SPI's industrial division at Stockport, Cheshire.

CPS to go USM

STOCKBROKER L. Messel will bring CPS Computer Group, an IBM systems house based in Warwick, to the Unlisted Securities Market later this month. CPS hopes to raise £1 million from an initial placing of 10% of its equity, which should value the company at about £14 million.

CPS's business includes the six of IBM mainframes and distributing add-ons for the IBM Personal Computer. CPS had pre-tax profit of some £150,000 in the first quarter of its current fiscal year again £750,000 in the full year in 1983. It started life making corduroy.

Hong Kong bid

CABLE & Wireless has made a £300 million cash bid to take over Hong Kong Telephone in which it already had a 38% stake. Cable bought 34.8% of Hong Kong Telephone last March, and it was obliged to make a general offer when it took its share holding over 35% on Sunday and triggered Hong Kong takeover rules. Cable and Wireless would have to borrow £1 billion to make a full takeover, though the bid is conditional on its acquiring at least 50%.

Quest wants Raw

QUEST AUTOMATION has an agreement to buy Raw Computers, which designs and builds microcomputer peripheral products. The company will form a subsidiary of Quest International Computers. The deal should be completed on March 1. Quest will take on Raw's liabilities and will issue 375,000 ordinary shares in exchange for all of Raw's issued share capital. Raw will be renamed Quest International Computer Technology.

The working party coordinator, Yves Chauvel, says: "I think there is a general agreement on the necessity for this recommendation (standard), therefore I am optimistic that it has a reasonable chance to be accepted.

"Any problems it might face come from a poor understanding of what is required rather than actual opposition. Telex and fax are two different worlds. Fax is from telecommunications people and telex is from telematics people. It is difficult to be well understood by both."

The protocol, called S.A. when it was given draft status in 1982, will be voted on in the SG8 meeting from February 27 to March 9 and if passed will be ratified by the CCITT plenary meeting at the end of the current four-year study period, this autumn.

It will also be discussed this month in standards-setting groups of ECMA (European Computer Manufacturers' Association) and ISO (International Standards Organisation), so that they can submit their comments to the SG8 meeting.

AS well as its sponsors in the French administration, S.A. enjoys the enthusiastic support of IBM, whose support in the past has transformed a good idea, or even a mediocre idea, into a busy marketplace activity.

An IBM spokesman says that the company regards S.A. as a "coherent and useful piece of work which we believe will aid international standardisation".

He emphasises that the company also supports similar projects in ISO (International Standards Organisation) and ECMA (European Computer Manufacturers' Association).

But the various bodies working on information technology standards, including these three and the US IEEE (Institute of Electrical and Electronic Engineers), have in any case been making increased efforts to work together. This is particularly so since the IEEE's work on turning Xerox's Ethernet into a standard for local area networking threatened to knock ISO's and CCITT's work on Open Systems Interconnection into a cocked hat.

Coordinator Yves Chauvel says that the S.A. working party has made heavy use of inputs from ISO and ECMA and that if it succeeds it will be the first jointly developed recommendation.

A paper published in IBM's *Systems Journal* last year carries a cost analysis of telex, which shows it in a good light compared with telex and the postal service in West Germany in 1981.

Transmission of a four-page document by telex is shown to cost between six and 19 US cents, depending on distance and time of day transmitted, compared with 89 cents to \$4 for a telex message of the same length and 94 cents for a letter. The 94-cent letter cost is made up of first class postage plus an average internal distribution cost which is not applied to telex or teletex.

The paper, by an IBM engineer in the US, says: "Telex has the potential to become a major force in telecommunications and to create a large business opportunity for communicating office machines. It has the flexibility to extend its current capabilities and to provide for future needs by allowing additional features, by interacting with other services, and by utilising new networks."

The three methods by which new capabilities may be added to telex, the paper says, are private protocol, national requirements and CCITT recommendations. A manufacturer or nation may create a problem of incompatibility by providing capabilities that others do not support, it adds.

But it concludes: "This approach allows truly international implementation that will benefit all users."

NEWS ANALYSIS

Mixing fax and teletex draws near

Donald Kennett examines progress towards a new standard

Teletex has been criticised for having no means of authenticating messages. While telex messages are received on dedicated terminals, with a recognisable typeface, teletex messages are received on word processors, which could be made to produce an apparently authentic message locally.

The protocol for mixed mode teletex and facsimile transmission was proposed by the French telecommunications administration in 1979. It has since been under development in a working party of the CCITT (International Consultative Committee on Telephony and Telegraphy) Study Group Eight (SG8), which deals with telematics (information technology) services.

The working party coordinator, Yves Chauvel, says: "I think there is a general agreement on the necessity for this recommendation (standard), therefore I am optimistic that it has a reasonable chance to be accepted.

"Any problems it might face come from a poor understanding of what is required rather than actual opposition. Telex and fax are two different worlds. Fax is from telecommunications people and telex is from telematics people. It is difficult to be well understood by both."

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SOFTWARE FILE

Weapons spread in pirate war

NEW weapons in the war against the software pirates are emerging from such unlikely origins as Tel Aviv and Chippenden.

The Israeli method comes from Adi Shamir, mathematics professor at the Weizmann Institute. He has designed a disc drive that produces pulses when running a program, which cannot be reproduced when copying it on a home computer. He has coupled this with a technique for marking the user's disc drive cancel in-built pulses at each run, so the number of runs can be controlled.

The snag is that Shamir's invention, announced last autumn, has to fight its way out of academia through the national bureaucracy

and into the marketplace. He is getting together with Ami Herzberg of Technion, an Israeli software house also researching the problem of piracy, to look for effective international marketing channels.

Irene Winer, director of the country's software exports, says: "We have a lot of innovative talent and all it needs is for the right big company to show our experts how to sell their ideas."

Israel's "Silicon Desert" now has 80 firms, including several that specialise in piracy solutions, such as S3 and Defendisk.

Meanwhile, back in Wiltshire, Keith West of Parwest claims to be ahead of the Israelis with a wholly



WINER . . . "All we need is the right big company to show our experts how to sell their ideas."

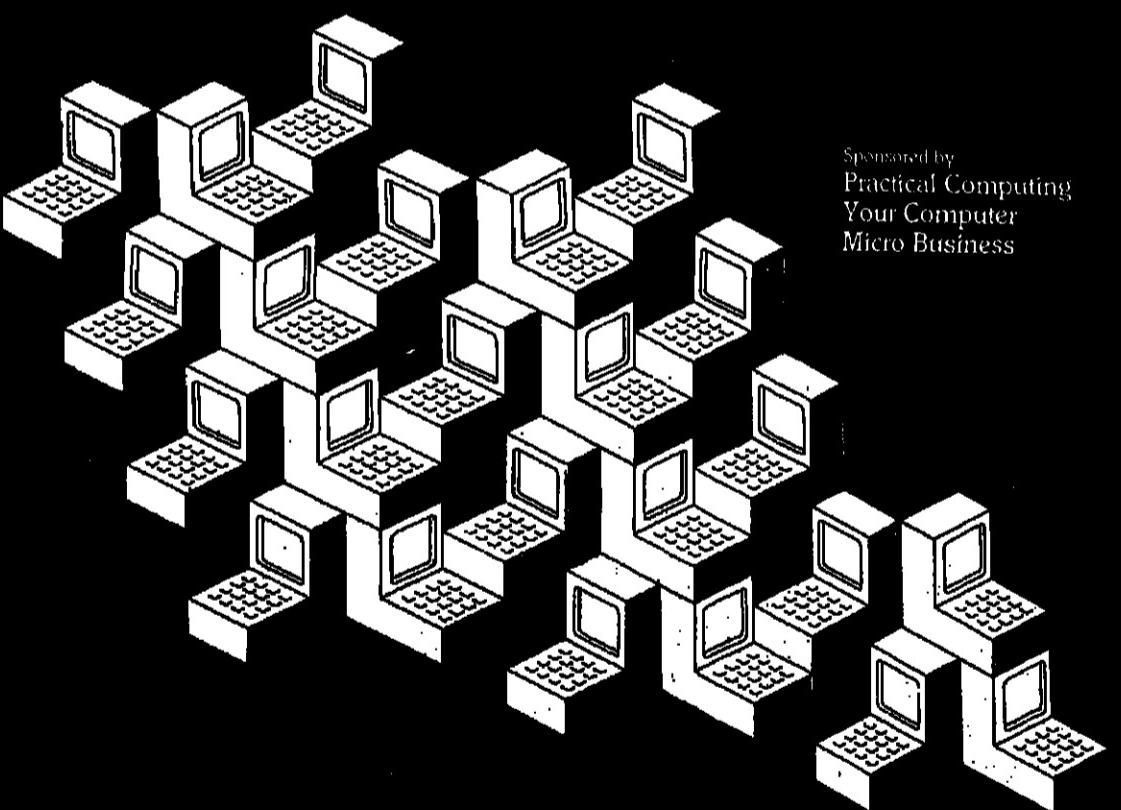
software solution to the problem.

"The program prevents a user from running it if he is not authorised to do so. We've had it going for a year and challenged people to crack it and they have failed," he says.

Having overcome the fear of piracy, he says the way is now open for software rentals to take off. He is trying to set up a network of 300 dealers nationwide to rent programs by the month.

■ The battle for reform of the copyright law goes on. The Federation Against Software Theft (FAST), including IBM, DEC and the British Computer Society, meets at the end of this month. It will debate a proposal to back a Private Member's Bill which would ensure that software is covered under the law.

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National Exhibition Centre, Birmingham, May 4-7, 1984.

After one of the Midland Computer Fairs, successfully established by Reed Exhibitions, the Midland Computer Fair is back again this year, with a larger exhibition area and more exhibitors.

For those who missed the first fair, or those who are interested in finding out more about the latest developments in the computer industry, the Midland Computer Fair is the place to go.

For those who are attending the fair, there will be a special exhibition area for the 1984 Midland Computer Fair.

For those who are not attending the fair, there will be a special exhibition area for the 1984 Midland Computer Fair.

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THE Midland Computer Fair
Personal computers
Home computing
Small business systems

Shopping over the terminal arrives

by Claire Gooding

SOFTWARE shoppers in Britain will be able to buy games and other products "over the terminal" this spring in an experiment that could revolutionise software distribution. W. H. Smith, Rumbelows and Dixons are among retailers at present discussing the electronic distribution scheme with UK firm Prism.

Prism signed with Romox, the New York originator of the technique, last July. It is now setting up a pilot scheme, which will bring the UK in line with the US and Europe, where the system is already in use.

In Paris, Communications Telematic is already using the Romox special cartridges and terminals to send software down the line to terminals in 20 large department stores. There is also a pilot scheme being conducted by Oy Teledata in Scandinavia, including computer stores, video shops and TV chain, planned to expand to 100 terminals by the end of the year.

All the terminals in the UK and Europe will connect with Romox's central mainframe in California, which provides a pool of games and other products. These can be browsed through in menu form, and when the buyer has made a choice, the software is then written to a special cartridge.

The Romox cartridge carries an EPROM (erasable programmable read only memory), which can be re-programmed in minutes without being removed from the cartridge.

Romox is applying to patent the technique, which, according to Prism Software Products managing director Steve Wood, holds many benefits for both buyer and retailer. "The whole value is that buyers can get new software immediately — it only has to be loaded overnight, and there is none of the delay involved in packaging and duplication."

As well as the immediacy for the buyers, the quicker "life cycle" for products will benefit software houses, claims Wood. "As well as immediate distribution, there is less of a copyright problem. I envisage volume sales — that is, the bulk of sales for new products — made through electronic distribution; then the cassette will follow."

Once a buyer has bought one of the EPROM cartridges, it can be re-programmed again and again as new products come in. In the US Romox charges between \$15 and \$25 for the cartridges, with software costs for individual products ranging between \$6 and \$25.

In the UK Wood is still negotiating with software houses for distribution rights, but hopes to woo them into committing their new titles exclusively to the Prism experiment. "The success of the system depends on the price and the quality of the software we offer. I will be using some stuff from the US, but not all."

Wood has already reached agreement with two British software houses.

W. H. Smith is more cautious, but nevertheless very interested in the Romox technique. "It's all a bit speculative," he says. "We've expressed an interest," says national merchandise controller Stewart Black.

"The implications are profound for the industry — we may finish up retailing in a totally different way."

Logica support

LOGICA'S relational database, Rapport, has gained more support this time from GEC Computers. GEC has signed with Logica to market and support Rapport. The database already runs on the GEC 4096 and 4100 series of machines.

SOFTWARE FILE

UK could miss the Ada boat

BRITAIN is in danger of missing the Ada boat unless the government gives strong signs of its commitment to the language.

This is the view of Rolm vice-president Dennis Paboojian, who is currently touring Europe to promote his firm's compiler. He says he has found far more sense of purpose concerning Ada in France, Germany and even Italy and Spain. He criticises British software houses, which still seem confused over the government's attitude to real time languages and therefore stuck to either Coral for military use or Pascal separately.

The Ada Group — a consortium led by ICL — is struggling to resurrect the Ada half of the venture, but talks on who pays for what are still deadlocked. Paboojian's remarks come as the British government's £9 million MACHAPE scheme remains tangled up in negotiations by its sponsors. The scheme collapsed last year when British Telecom pulled out of the deal and opted to carry on its research into Chill separately. The Ada Group — a consortium led by ICL — is struggling to resurrect the Ada half of the venture, but talks on who pays for what are still deadlocked.

Paboojian's aim in visiting potential clients, such as Westland Helicopters at Yeovil and the Defence Ministry's RSRE division at Malvern, is to allay British fears that Ada "might not happen after all".

He points to clear directives issued by US Defense Department under-secretary Richard Delauer in June and December of last year, laying down the timetable for adopting Ada. From January 1984 advanced development would be

fence Ministry's RSRE division at Malvern, to allay British fears that Ada "might not happen after all".

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in Ada and from July 1984 all full-scale engineering development.

Paboojian sees no possibility that it will retract those statements or grant wholesale waivers to software writers.

"Ada has hit all the milestones that the DoD has set for it, whatever the problems encountered by Softech or Intermetrics," says Paboojian.

"There is no scepticism about Ada in the US any more. It seems to be only in Britain that there is."

Britain's lack of initiative is reflected in the small number of people now working in the Ada area, he says. He thinks there are not more than a few dozen capable Ada engineers in the UK, whereas the US figure is already well over the 500 mark.

year.

Expert pleads case for safety control

INDUSTRY is not interested in the risks of using software to control safety, an expert has complained.

A new report just published by Basil and Perricane finds that 48% of errors detected in two systems — one on an IBM 360 and the other on a DEC PDP10 — are due to specification problems.

"That just shows we aren't getting any better," commented Bennett.

Barry Daniels, a senior engineer at the National Centre of Systems Reliability, regretted that software was still not amenable to quantitative assessment. But he added that the centre hoped to be able to extend the use of quantification in risk evaluation on the basis of current research.

Ron Bell of the Factory Inspectorate said in one case a software fault had led to a "very serious explosion indeed" at a major company in this country. A programme change crept in undetected while the systems team was working flat out and under pressure.

In an implicit criticism of the Alvey approach, he cast doubt on the value of formal specifications.

Concurrent CP/M sweetens the Apricot

by Claire Gooding

PRODUCTIVITY improvements of 30% and upwards for users are claimed for the first applications to appear on the Apricot under the Concurrent CP/M system. The packages are being launched by London software house Graffcom at the London show devoted to ACT's Sirius and Apricot machines this week.

According to Robert Owen, managing director of Graffcom, the packages are the first Apricot applications available under Digital Research's multi-tasking single-user operating system.

"These packages are very new. They've only been available on the Apricot for two or three weeks and as far as we know they're the first Concurrent CP/M packages."

"We're expecting to run promotional deal with discounts of 30% or so for contracts signed at the show," he adds.

"You get better continuity of work," he adds.

Software File is compiled by George Black



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DMS is the only package to be called poor value for money, though Focus shows up poorly in documentation and vendor support.

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OWEN . . . "Excellent results."

The packages are Graffcom's staple product, the ISBS/F range of financial modules, normally priced at £220 each on the IBM XT, the WP2020 word processing package, and the newest Graffcom product, the Oman suite of integrated office software. All three have been designed and written in-house by Graffcom.

"We're pushing Concurrent CP/M as the ideal environment for running business applications," says Owen. "We've had excellent results ourselves and believe that Concurrent offers vast improvements for the single user."

"You get better continuity of work," he adds.

Software File is compiled by George Black

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COMPANY NEWS**Digico goes to the wall**

THE British minicomputer maker has long been an endangered species, and it is perhaps no surprise that Digico should end up with the receiver.

The company has courted disaster for months. Back in October 1983, its Stevenage-based maintenance business was sold to Optim Computers and Digico's managing director, Kenneth Atkinson, said then that the sale was part of a grand plan to rescue the firm's finances, and that he would not be averse to a merger.

Apparently, Digico has been entertaining suitors in Leeds ever since.

Peter Scanlan, joint receiver from Peat Marwick Mitchell, is looking for "a going concern", and although he has already received "expansions of interest" in the company, he may yet have his work cut out.

Digico was founded in the mid-1960s by Keith Trickett, later to be managing director of CAD/CAM house Compedit. It intended to compete in scientific markets against DEC and the PDP-8. It later supplemented its minicomputer range with the Z-80 based Prince micro.

The company is reported to have installed machines with over 1,500 customers in the UK, and numbers British Rail among its big accounts.

Scanlan said that Digico's exact financial position, including its level of debt, was not yet clear, but he indicated that figures of £500,000 owing to Midland Bank and £1 million to other creditors were not too wide of the mark.

Digico hoped to cut a loss of around £1 million in 1982 to some £200,000 on turnover of £4 million in the year to September 30, 1982.

Last autumn, the company had an overdraft approaching £1.5 million — which was cut in half when Optim bought the maintenance contracts on Digico's installed machines for a reported £750,000.



ATKINSON . . . Seeking merger that never materialised.

High-tech CML goes Unlisted

CML MICROSYSTEMS, a specialist integrated circuit maker from Witham, is the latest high-technology recruit to the Unlisted Securities Market.

Brokers Simon and Coates brought the company to market by way of an offer for sale by tender. Given the state of indifferent tenders before Christmas — Cable & Wireless, Datacom, VG Instruments — the CML offer was pitched low, at 93 pence per share.

The offer was over-subscribed 20 times at a striking price of 130 pence, though the price will probably be above that.

The minimum tender price gave the company a market capitalisation of just under £8 million, putting it on a prospective price earnings multiple of 15.2 on an actual 38% tax charge, or around 20 fully taxed.

The company has been around since 1968. It was founded by the present chairman and managing director, George Curry, as Consumer Microcircuits Ltd. It changed its name to CML Microsystems in November 1982, and is the holding company for three subsidiaries.

CML manufactures products for sale worldwide, and does the group's research and development.

MX-COM, based in Winston-Salem, North Carolina, is responsible for marketing in the US and Japan, and the company coordinates the group's purchase of silicon wafers in the US. Though Consumer Microcircuits Ltd and Svenska AB does not trade at the moment, the group's overseas business is increasing steadily, and in 1983 it opened a production facility at MX-COM.

The company offers some 50 products — specialist monolithic and hybrid integrated circuits for the telecommunications, radio and data communications industries. Some 20% of its sales are made in the UK, 55% in the rest of western Europe, and 11% and 13% in the US and Far East respectively.

Its customers include Racal, Plessey, GEC, Ericsson, Motorola, and Mitsubishi. Sales split by sector into land mobile radio, 20%; telecommunications, 20%; radio paging, 22%.

Turnover within the group has grown steadily from £1,021,000 in 1979 to £2,611,000 in the year to March 1983, and £1,945,000 in the six months ended September 30. Its profit record is not so high. After making £337,000 pre-tax in 1979, unusually high gold prices and low manufacturing yields

ruined margins, and pre-profits fell to £218,000 in 1980 and were nil in 1981.

However, the company pre-tax profits of £404,000 in 1983, and made £195,000 in the months to September 30. CML has forecast that profits in the next year will not be less than £841,000.

The company expects to be around £250,000 from the net after costs. It intends to use cash to expand its manufacturing and engineering facilities at Winston-Salem and in North Carolina.

CML would seem to be going for it — not least in this of broker. Simon and Coates has reputation for finding high-growth companies. It numbers Amiga Business Systems, Star Computer and Memmory Computer among new issues it has handled.

The fact that CML managers mention integrated circuits, telecommunications, and defence contracts in its prospectus, all of which excite the City, can do prospects no harm.

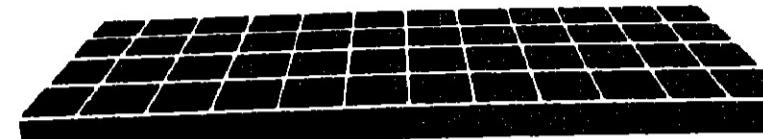
The only obvious lead is the technological developments happening with unerring speed a CML's industry, and both company and investors will have to look hard at the competition.

An important conference for companies buying products to sell on to the user

The Computer Trade Conference is aimed at the serious computer trader. Manufacturers, suppliers and third party vendors will exchange ideas on the marketing and selling of computer products. Acknowledged specialists will present their ideas on the best ways to tackle third party sales.

Being held in conjunction with the Computer Trade Exhibition, the event is sponsored by Computer Weekly, Micro Business, Practical Computing, Systems International and Software.

The Computer Trade Conference '84


Wembley Conference Centre
March 13-14

**TUESDAY, MARCH 13TH
SOFTWARE****RETAILING****8.30 COFFEE AND REGISTRATION**

9.15 Mass Retailing of Business Micros — Michael Milman, managing director, Greens Business Systems (a subsidiary of Debenhams Ltd.)

9.55 How dealers should present themselves — Chuck Hansen, managing director, Computerland.

10.35 COFFEE

10.55 What Apple expects from their dealers; what Apple gives their dealers in return — Keith Hall, sales and marketing director, Apple Computers (UK).

11.55 Retailing through education and training — G. Summers, managing director, Planning Consultancy Ltd.

12.25 LUNCH**MARKETING TO THE PROFESSIONAL AND CORPORATE MARKET**

2.00 Choosing Your Products — Jack Schofield, editor, Practical Computing.

2.40 Market products and sales channels — key considerations in the building of the dealer programme — John Crawford, vice president, world-wide dealer programmes, Data General Corporation.

3.20 Personal computer dealer marketing in 1984 — Nigel Henzell-Thomas, personal computer dealer manager, IBM Ltd.

3.45 DEC's approach to the marketplace — Mike Harding, marketing specialist, Digital Equipment.

4.10 How to approach the corporate customer — Hal Hovland, joint managing director, Hovland Business Systems.

4.50 CLOSE**WEDNESDAY, MARCH 14TH
SOFTWARE****8.30 COFFEE AND REGISTRATION**

9.15 Vertical market software — coverage of vertical markets by specific packages varies greatly — some sectors are over-supplied and there are many open opportunities — Russ Nathan, managing director, Romtec.

9.55 Procurement — How you evaluate software from various sources — David Turley, director information systems division, Tamsys.

10.05 COFFEE

10.55 Marketing Software — The Business Market — Barry Neil, sales manager, Micro Computer Products International Ltd.

The Games Market — Nick Alexander, managing director, Virgin Games.

11.35 Systems and applications software developments — David Fraser, general manager, Microsoft Ltd.

12.15 LUNCH — Guest speaker — John McNulty, McNulty's Interchange.

SYSTEMS INTEGRATORS AND OEMs

2.00 Communication is the key to office automation — Malcolm Reip, OEM marketing manager, Computer and Systems Engineering PLC.

2.40 Discs and Peripherals — Bob Britten, sales and operations manager, Kennedy International Inc.

3.20 Printer products and the markets — Alan Clemmetsen, consultant, Mannesmann Tally.

4.00 Market trends in VDUs and VDU terminals — Harvey Uljohn, managing director, Lear Siegler Data Products Ltd.

4.40 CLOSE

Please complete in block capitals and send to: Conference Administrator, Room 1313, Surrey House, Throwley Way, Sutton, Surrey SM1 4QQ. Tel: 01-643 8040. Ext: 4890 and 4892.

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Motorola breaks \$4m barrier

NOT to be outdone by the likes of Intel and National Semiconductor, Motorola has reported record sales and earnings for the full year and fourth quarter of 1983. Turnover broke \$4 million for the first time and profit margins strengthened.

For the full year, earnings rose 43% to \$244 million on turnover up 14% to \$4.33 billion. In the fourth quarter, earnings were up 72% to \$95 million on sales ahead 27% to \$1.27 billion.

The company says that the fourth quarter performance was aided by strong growth in its communications and semiconductor sectors. Margin on sales for the year rose from 4.5% to 5.6%, and that figure stood at 7.5% in the fourth quarter.

Robert Galvin, chairman and chief executive of the company, says that Motorola is benefiting from a "consumer-driven recovery", and increased national defence spending.

What Motorola describes as the capital goods portion of the company — the Communications sector and the Information Systems group — did not have such a good time, but progress in the latter part of the year is expected to show up in 1984.

An enthusiastic Galvin points to a growing rate of orders booked and says: "We look forward to continued growth in sales and earnings in 1984 and for the long term."

Significantly, the Information Systems group incurred an operating loss of \$5 million against a profit of \$2 million in 1982, after incurring an \$11 million charge in the fourth quarter because of discontinuing a line of central processing required by Four-Phase Systems (before it was bought by Motorola).

The government's Business Expansion Scheme, whilst Unlisted Securities do not. The government introduced the Business Expansion Scheme in the 1983 Finance Act. It provides attractive tax incentives for high rate payers who are willing to risk money in new companies.

This link between the Scheme and the OTC market has proved to be one of the main advantages. Although Unlisted Securities has launched into the OTC market, only three have qualified under the scheme, he concluded that some 50% of new issues will do so.

Norsk correction

Norsk Data points out that although it did increase its pre-tax profit by 93% in 1983, that was 5.1% from £6.3 million, to £12.1 million, and not to £6.2 million, as we reported last week.

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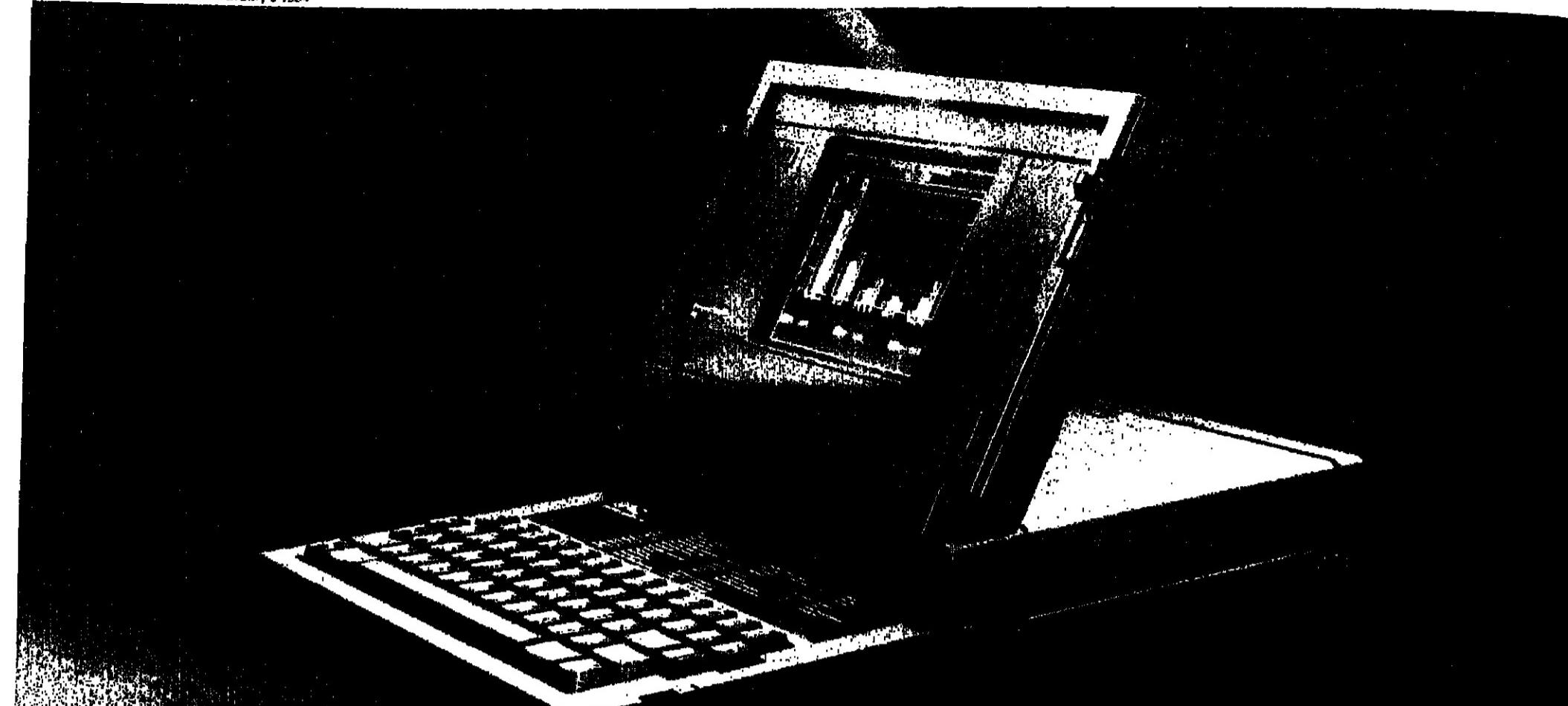
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5 12 19 26 3 10 17 24 31 7 14 21 28 5 12 19 26 2 8 16 23 30 6 13 20 27

5 12 19 26 3 10 17 24 31 7 14 21 28 5 12 19 26 2 8 16 23 30 6 13 20 27

5 12 19 26 3 10 17 24 31 7 14 21 28 5 12 19 26 2 8 16 23 30 6 13 20 27

5 1



For the ordinary desk job, however, you could probably get away with an IBM

Unquestionably, IBM's PC has set the standard for personal computers.

By now you'd think it impossible to get executives to part with them.

Except they do. Every time they leave the office.

Could we, someone asked, take the best features of the IBM, take the space of half a briefcase and come up with a more personal, personal computer?

The result of this challenge is the Grid Compass. In its own way becoming standard hardware for those who need to work as effectively outside the office as in.

Although weighing only 10 lbs, the Grid is far from light on power. There's 512KB of RAM. Another 384KB, a whole double-sided disksworth, of bubble memory.

Unlike the humble portable, Grid has a full-size screen display. And with its MS-DOS operating system, you can run all your familiar PC software.

Like WordStar, Multiplan and Lotus 1-2-3.

Grid's own software should prove instantly familiar too, be it a spreadsheet, database, word-processing or graphics package. Because learning to use one program teaches you to use them all.

Grid even has its own, integral telecommunications modem. So along with giving you on-the-spot answers, our personal can take your data, process it, model it, graph it, transmit or print it out anywhere in the world.

SEE US ON STAND 816, INFO '84, 21-24 FEBRUARY
FOR INFORMATION, SEND BUSINESS CARD TO:
GRID COMPUTERSYSTEMS LIMITED, 4 SPRINGFIELD ROAD, HORSHAM,
WEST SUSSEX RH12 2PN Telephone: 0403 44317

Finally, you'll notice the Grid doesn't come out of something looking like a sewing machine box.

In its elegant, black magnesium case, it's as personable as it's personal.

But as you might expect, there's a price to be paid for such an exceptional machine.

Should you have an ordinary desk job, your company may well decide it's unaffordable.

But should your office usually look more like a restaurant, or a construction site, or someone else's boardroom, they may well decide it's indispensable.

Like WordStar, Multiplan and Lotus 1-2-3.

Grid's own software should prove instantly familiar too, be it a spreadsheet, database, word-processing or graphics package. Because learning to use one program teaches you to use them all.

Grid even has its own, integral telecommunications

modem. So along with giving you on-the-spot answers,

our personal can take your data, process it, model it,

graph it, transmit or print it out anywhere in the world.

Grid

PLATFORM

Why a standard Cobol is vital

COBOL evolved in the early 1960s under the guidance of the US Defense Department, whose purchasing policy greatly influences the direction of the major computer manufacturers' standards in the development of languages.

The majority of the work of maintaining and developing the standard definition for Cobol still takes place in the US and Canada. There is some contribution from the rest of the world in setting the Cobol language standard, as most

At first, I did not realise the whole process for creating and controlling the Cobol standard was so convoluted

commercial programming, in both installations and software houses, is carried out still in Cobol.

Leaving aside James Martin's fundamental questioning of the need for Cobol, why do we need a standard for Cobol? I work in what might be considered a medium-sized site. It uses a Sperry 1100/61 processor with a special Cobol accelerator and has invested in the region of 200 man-years in Cobol programming, comprising approximately 2,500,000 lines of code currently in use.

That investment is neither easily discarded nor easily converted to a new manufacturer's dialect of Cobol (estimates vary from 20 to 50 man-years to carry out such a task!) In addition, it has become important to the site's medium- to long-term planning to avoid being locked into a specific supplier.

To ensure that this aim is met, our library of programs must become truly portable between any number of systems and compilers. There remains the long-standing problem of the different internal codes and file structures of different computer systems but that can be more easily overcome if they all speak the same language.

With the emergence of network and OSI (open systems interconnect) standards there is hope that a code structure such as ISO ASCII will become a recognised interchange standard.

We can give the setting of an interchange code standard a definite prod in the right direction if we present a strong, united front on the whole issue of standardisation.

A prime reason for needing a standard Cobol language definition is that for organisations operating in similar areas such as local auth-

rities, or having similar needs, such as financial planning, it has become practical to acquire packages to carry out the required applications.

Such acquisitions eventually reduce coding commitments by one site; they also reduce considerably their future maintenance requirements. Clearly the availability of packages in a standard language would enhance their attractions.

An eventual benefit is that systems and programming staff will have more time to spend with their individual applications users, whether they are other departments in the same company, or customers of their bureau.

I will refer to these applications users as end-users. These end-users are the people who keep us all in business, and sometimes we devote insufficient time really coming to terms with their individual systems requirements.

Further, with the emergence of a standard Cobol language definition

have a personal and professional interest, but more importantly, I am unwilling to leave it to someone else!

At first, I did not realise the whole process for creating and controlling the Cobol standard was so convoluted. I have suffered many frustrations in attempting to obtain the implementation of relatively minor change to the STOP RUN verb. Codasyl, the committee that vets and ratifies actual syntax changes, has altered the format of my change several times since it was first submitted to them.

I now realise that it may be as long as 10 years' time before this alteration appears in a Cobol standard! I appreciate that my own proposal has run into difficulty because it is simple in its own right, but has a potentially significant effect on other language features.

I now think that, in general, the processing of Cobol language modifications is grinding to a halt.

It must not be dominated by any particular group but represent the

turners and suppliers of software from imposing their own ideas on Cobol language development.

Many good new features that are being introduced into the Cobol language, such as screen management, validate and update and analyse, were developed in UK working groups, and the American-based committees are eager to encourage European-based users, especially those from the UK, to participate in the relevant standards processing groups (not just Cobol).

The achievement of a satisfactory Cobol language standard would be its primary objective, but it would be a forum for widening the standard setting process. Several groups exist at the moment that influence standards in the computing industry, such as European Computer Manufacturers' Association and the International Standards Organisation.

What I seek is a group that recognises and represents the needs of the computer application system developers. The aims of this group would be more easily identified with those of the NCC, whose current Cobol Standards Group could form the basis of the new standards board. The end-user just does not want to know!

If we exaggerate the difficulties of program portability and hardware incompatibility to then they are going to question the need for trained, professional data processing departments.

"LOOK to the long term" is a good bit of advice which is seldom heeded. The problem of trading short term gain against long term stability is a dilemma which faces senior managers in many companies. Investors and shareholders are often impatient. Managers are encouraged to postpone difficult decisions. They are not unhappy to acquiesce in the knowledge that someone else is likely to be at the helm by the time the effects of their decisions are apparent.

One of the hallmarks of the present government is that it is going for the long term. Early in the Prime Minister's first term she stated that it would take another five years of office if her policies were to succeed. The times are hard now, she would say, but only by making these tough decisions can Britain's future be ensured.

It is all the more surprising that the government has apparently chosen the short term solution in trying to bring down the numbers on the unemployment register.

Last year a proposal was put before the Manpower Services Commission to spend some £300 million on training unemployed youngsters for jobs in information technology. The money would have come from funds allocated to the Youth Training Scheme. The National Computing Centre, which formulated the scheme, estimates that over 350,000 young people could have found jobs in data processing. The Cabinet, we understand, approved the scheme.

In the autumn of last year, however, the plan was scrapped. The £300 million earmarked for the scheme could potentially create many more "jobs" for people with lower level skills. That is, £300 million expended on low level training takes a lot more people off the unemployment register than £300 million spent on high level training.

High level training costs more and takes more time, and therefore you can train fewer people with the same money. One of the criticisms of YTS was that it was merely a cosmetic exercise to take young people off the unemployment register and put them on training schemes which offered no long term prospect of a job. The NCC scheme promised to avoid that trap, but its success was not guaranteed to be quite so instant.

A White Paper published last week says that the MSC is expected to give "priority to newly emerging skills, such as electronics and robotics". That is a noble aim. There must be some doubt, however, about the government's real commitment to such priorities in the light of its track record on training.

Industry has its part to play in training, and its own track record is not outstanding. During the recession most companies were content to let their training programmes fall into disuse, even though they were aware that the first glimmer of better times would expose severe shortages of skilled data processing staff.

They are justified, however, in looking for a lead from government — for evidence of a well thought out and constant strategy.

One senior industry spokesman, who has regular dealings with the civil servants responsible for information technology, said after a recent rash of job changes in the Civil Service: "It's just the old shuffling of the pack: they don't like bureaucrats getting too familiar with industry people".

Hugh Sharpe, who headed the computer training division of MSC, was moved after only one year in office. George Tolley, who set up Open Tech, an Open University type of scheme for technical skills, was replaced before he had been in the job for a year. And recently the old shuffle took place at the Trade and Industry Department: Alistair McDonald, head of the Information Technology Division, off to be come head of telecommunications; Jonathon Solomon goes from telecomms to education; Jack Leeming goes from there to the Space, Post Office, and Film Division.

PETER HERMON Managing Director Tandem Computers Northolt, Middlesex.

Prize grows

I HAVE to express my amazement at a front page headline, "DRC shows recovery", but "Prize fails" (Computer Weekly, January 26). DRC's results did recover from the previous quarter, although they are still 18% down from 1982, as you stated. The analysis of Prime's results also shows quarter-to-quarter increases: revenues grew 9%, net income a respectable 32%.

Your report correctly stated that Prime's 1983 net income was 28% below that of 1982, but failed to mention that Prime's net income was still 4.5% of revenue, whereas DEC's "figure" figure is 5.7%.

ROBIN T. SHERLTON Director Finance & Administration Prime Computer (UK) Hemel Hempstead, Hertfordshire

1984 and all that...

THIS week's example of the strange things people say about computers was sent in by Keith Appleyard of Coventry, who wins £5.

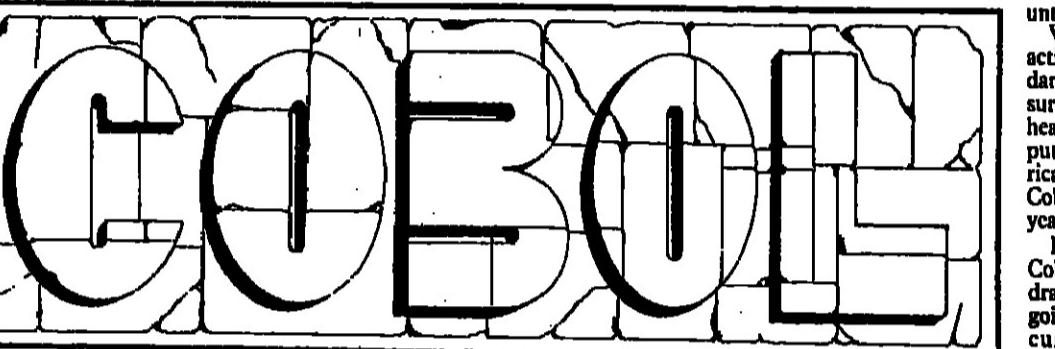
British Telecom is investing £250 million in the exchanges which electronically scan speech 64,000 times a second and improves its quality.

Coventry Evening Telegraph



Douglas Atkins is technical and research manager in the computer department of Leicestershire County Council.

problem, we have only ourselves



tion, it will be possible to adopt proper programming methodologies which themselves eventually become standard techniques. The benefits are universal in that better programs are created, there is less maintenance commitment, and consequently more time is available for us all to catch up with those seemingly inexhaustible backlog of development requests.

Inevitably, there would be greater programmer mobility, but this would be compensated by the swifter integration of new staff due to the standardised training methods facilitated by standard Cobol. If there is little willingness currently to be involved in the standards-making process, then computer management can hardly bemoan the current difficulties of recruiting trained, effective programmers when many of their installations are unwilling or unable to do their own training.

Also, I have had little time available for considering the wider impact of my proposal on the structure of the Cobol language. As a consequence, the proposal has been referred back several times by Codasyl for revision.

The effort expended on my proposal has not been entirely wasted, but if I had had more guidance initially and a better understanding of the processes involved, perhaps my relatively minor modification could be out of the way by now leaving time for the EEC's efforts on standards.

In other words, we need to create a recognised computer standards organisation skilled in directing our efforts, and able to arrange the necessary funds for maintaining the impetus of our involvement in the standards making process.

This last point is extremely important as it is impractical to expect individual installations to stand the cost of attendance at meetings all over Europe and the US when the benefits accrue to all computer users.

The continual objections raised by a vociferous minority, whenever Ansi X3.14 produces a revised standard for public comment, does nothing to improve the situation.

I consider the time has come when more Cobol users should participate. This does not have to

under the weight of work required to deal with the many proposed changes. The members of the Codasyl committee, although very interested in the development of the Cobol language, attend on a voluntary basis and have many other calls on their time.

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views of the large number of organisations developing application systems, using Cobol, although other important issues may also be considered later on. Whether this board should involve only the UK, or the whole of Europe also needs to be considered in view of the EEC's efforts on standards.

The reasons behind forming a standards board are: that it will carry authority; represent a large part of the computer community; attract interested users; and be able to canvas government bodies for funds.

There are well-documented cases of end-users developing the majority of their own online applications leaving the tedium of traditional batch systems to the data processing department.

The data processing department has to be able to take advantage of a properly established, standardised Cobol language

I am not advocating any form of reactionary protectionism at my own site is evaluating one of the advanced application development tools. I am concerned that the great deal of manpower my site and many others have invested in developing effective systems using Cobol is not lightly discarded.

I then decided to adventure further and try the remote-link facility which allows users to link up directly using the Micronet modem. On phoning Micronet "technical support" department I was informed that as their Apple had been down for several weeks, they had been unable to test out this facility, and I was advised to Mailbox Y2 who developed the Micronet interface for the Apple.

The trouble with Mailbox is that it is like an answering machine. If Y2 decides not to reply I'm stuck up the creek without a paddle.

However, the link-up with Micronet works very well and I'm enjoying using the Micronet service despite the 50-minute phone calls.

NEIL WOODNICK Sinclair Computer Systems Kenton, Middlesex.

10 YEARS AGO

FROM COMPUTER WEEKLY OF FEBRUARY 7, 1974: The first UK order for the IBM 3600 finance communication system was placed by Lloyds Bank as

part of a £1.5 million plan to update its online branch network ... a new association for users of CMC key-to-disc equipment, Cunica, was established."

PUZZLER

A FRIEND of mine has two ordinary six-sided dice which are specially marked, so as to give every number from one to 12 an equal chance of coming up when the two cubes are thrown simultaneously.

Can you work out the special markings (which must obviously involve at least one blank face) before turning to page 79 for the solution?

This equitable arrangement is in contrast to the conventional 1-2-3-

4-5-6 layout, which favours a combination seven-count in particular, and of course eliminates all possibility of a one-count.

And IBM has quietly adopted Unix for its own machines.

A bit like Soviet supremo Yuri Andropov getting the Republican nomination.

Appropriate

FOR those of you who take pleasure from life's little ironies, here is a tale to bring a smile to your lips:

If you cast your mind back to the promised arrival of IBM's 3600 disc storage system, you will remember that it was subsequently beat by postponement, probably up to Christmas, to deliver that never materialised.

Though the system is now with us, it is IBM's US press officer for disc systems. His name? Mr. Jim Lay.

IBM shares Popcorn

IBM is not sated for rushing new products on to the market if it can help it.

Draggin things out for a couple of years not only helps Big Blue iron out the bugs, but keeps a vast army of IBM pundits in a very lucrative job as they try to out-speculate each other as to what the new product will do.

But it looks as if the PC's big brother, Popcorn, is due for a premature birth in the early spring.

By involving ourselves, we will prevent both computer manufacturers

I KNOW WE PICK UP NON-MILITARY...

...BUT DO ALL OUR ANTENNAE HAVE TO...

FOCUS ON DOWNING STREET?

Liveware File by Bon

INTECHANGES OF INFORMATION WILLY-NILLY...

...BY KEITH APPLEYARD

IF YOU CAST YOUR MIND BACK TO THE PROMISED ARRIVAL OF IBM'S 3600 DISC STORAGE SYSTEM, YOU WILL REMEMBER THAT IT WAS SUBSEQUENTLY BEAT BY POSTPONEMENT, PROBABLY UP TO CHRISTMAS, TO DELIVER THAT NEVER MATERIALISED.

THOUGH THE SYSTEM IS NOW WITH US, IT IS IBM'S US PRESS OFFICER FOR DISC SYSTEMS. HIS NAME? MR. JIM LAY.

ComputerWeekly

Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS

Thursday, February 9, 1984

Government looks to the short term

"LOOK to the long term" is a good bit of advice which is seldom heeded. The problem of trading short term gain against long term stability is a dilemma which faces senior managers in many companies. Investors and shareholders are often impatient. Managers are encouraged to postpone difficult decisions. They are not unhappy to acquiesce in the knowledge that someone else is likely to be at the helm by the time the effects of their decisions are apparent.

One of the hallmarks of the present government is that it is going for the long term. Early in the Prime Minister's first term she stated that it would take another five years of office if her policies were to succeed. The times are hard now, she would say, but only by making these tough decisions can Britain's future be ensured.

It sat down with due trepidation a letter stating that there had been a delay on the Prism 2000 modem I had ordered and that I should receive the kit within the next 14 days. The interface duly arrived on December 14, with no documentation relating to the modem.

After six weeks' delay I received a letter stating that there had been a delay on the Prism 2000 modem I had ordered and that I should receive the kit within the next 14 days. The interface duly arrived on December 14, with no documentation relating to the modem.

As a contract programmer I am fairly often obliged to turn down prospective contracts because of excessive travelling time, inability to meet strict delivery dates and so on.

Today, however, I was gratified to find a much better reason for declining

JENSHEET

Fred Jennings, of software and systems house Data Logic, has prepared a series of reports on networks, called JENSheet. The eighth of these is on communication protocols, which we are publishing in five instalments due to space restrictions. This is the third instalment.

THE IBM 2780 RJE terminal was introduced in the late 1960s. It was designed to operate with either a poll/select protocol on multipoint communications links, or a contention protocol on point to point links. The IBM 2780 contention protocol is the one that is mostly used today.

It has become a de facto standard for the transfer of bulk data, and 2780 emulation is frequently used by devices. The protocol is constrained by the original characteristics of the IBM terminal and these will now be considered.

The IBM 2780 RJE terminal was designed to send large quantities of punched card data to a computer and receive back large quantities of data for punching or printing. The "component" (puncher or card punch) that is to receive the output data can be selected by the computer by means of a two character address, which precedes the data.

In IBM terminology this is known as "component selection" and if component selection is not used, then the line printer is selected by default.

The following IBM terminology is used to describe the quantity of data sent/received by an IBM 2780 terminal; "record" is the data in a single card or single line of print; "block" is a group of one or more records which are transmitted as a unit (block) and cause a line turnaround (ACK or NAK) to verify the accuracy of the transmission; and "message" is a group of one or more blocks which represent an entity of data.

The normal method of sending 2780 data is to use "multiple record transmission". A block can contain up to seven records, but no more than 400 characters, including all format and control characters. This maximum of 400 characters is a constraint based on the size of the hardware communications buffer in the original IBM 2780 terminal.

In the original 2780 terminal, cards that are not fully punched (short cards) have an "end of media" (EM) character punched as the last character.

Characters read by the card reader are loaded into the IBM 2780 communications buffer. If, during this operation, an EM character is detected, then an "end of record" (unit separator or US) character and record BCC characters are inserted in the buffer. If this card is the last record of a multiple record transmission, then an ETB character is inserted in the buffer instead of a US character. The detection of an EM character completes a card read and blank columns following the EM are ignored.

The format of a multiple record block is: SYN, SYN, SYN, STX, RECORD-DATA, US, BCC, STX, RECORD-DATA, US, BCC, ... (up to 7 times), STX, RECORD-DATA, ETB (ETB IF LAST BLOCK), BCC.

Reception of an EM character by an IBM 2780 terminal when punching cards will cause the

Contention protocol that has become a standard

punch to feed another card immediately, which results in increased punch throughput. However, if the data is being printed, then the EM character is ignored.

Normally a terminal will stop bidding and send a final EOT sequence after 15 consecutive bids have failed to produce a normal ACK response, however, the terminal is designed so that each WACK response resets the terminal's "bid" counter.

The IBM 2780 terminal has a horizontal tab (HT) feature, which allows the remote IBM computer to set up the line printer HT positions. The first record sent by an IBM computer to an IBM 2780 terminal is usually the "printer horizontal format control record" and this record is stored by the terminal.

When an IBM 2780 terminal makes a bid for an idle line, then a time period (time-out) of one or three seconds is allowed for an acknowledgement.

If the terminal is the primary device on the link, then the time-out is one second; if the terminal is the secondary device, then the time-out is three seconds.

In the present area of interest, protocols, the main differences between the IBM 3780 and the IBM 2780 contention protocols are:

■ Size of communications buffer: an IBM 3780 terminal uses a 2x512 character communications buffer and can transmit a data block of up to 512 data characters

continuing to transmit a WACK sequence in response to each bid, until the IBM computer is ready to continue.

Normally a terminal will stop bidding and send a final EOT sequence after 15 consecutive bids have failed to produce a normal ACK response, however, the terminal is designed so that each WACK response resets the terminal's "bid" counter.

The IBM 3780 provides conversational mode: the IBM 3780 provides conversational mode operation, which enables a receiving device B on an IBM 3780 link to start data transmission immediately the transmitting device A has sent its last block (terminated by ETX). The first block of the data transmission from B has an implied acknowledgement function and time is saved because the following steps in the contention protocol are not required:

Acknowledgment to last block (sent by B)

EOT sequence to make link idle (sent by A)

Bid sequence (sent by B)

Acknowledgment to bid sequence (sent by A)

■ Vertical forms control: The

Ascll	EDCDC	Carriage operation	IBM 2780
ESC Q	ESC /	Single space	*
ESC R	ESC S	Double space	*
ESC S	ESC T	Triple space	*
ESC A	ESC A	Skip to CHAN 1 (form feed)	*
ESC B	ESC B	Skip to CHAN 2 (vertical tab)	*
ESC C	ESC C	Skip to CHAN 3	*
ESC D	ESC D	Skip to CHAN 4	*
ESC E	ESC E	Skip to CHAN 5	*
ESC F	ESC F	Skip to CHAN 6	*
ESC G	ESC G	Skip to CHAN 7	*
ESC H	ESC H	Skip to CHAN 8	*
ESC I	ESC I	Skip to CHAN 9	*
ESC J	ESC J	Skip to CHAN 10	*
ESC K	ESC K	Skip to CHAN 11	*
ESC L	ESC L	Skip to CHAN 12	*
ESC M	ESC M	Suppress space	*

Figure 1: Two-character escape sequences for the IBM 3780 printer. An asterisk indicates the IBM 2780 subset.

IBM 3780 provides some additional vertical forms control functions which a computer (master) receives data from and sends data to its printer for its printer. The two-character escape sequences (first

Continued on page 21

JENSHEET

From page 20.

IBM 2780 subset).

■ Space compression/expansion: the IBM 3780 provides space compression, whereby two or more space characters found in the card data before transmission are replaced by a two character combination.

The first character of the combination is a group separator (GS) character and the second character is a space-counter character. On received data, GS characters are deleted and the space-count characters are used to determine the number of space characters to be inserted in the data. (The IBM 2780 has short card feature - EM character - which is not used by the IBM 3780).

This means that a mini/micro-computer system that emulates a particular manufacturer's clustered display system (eg IBM 3270) cannot be connected to another similar system. Therefore, there are two types of poll/select protocol emulation: "host end emulation" and "terminal end emulation".

A computer system that emulates a host end can communicate with another computer system which emulates the corresponding terminal end (a host end cannot communicate with another host end, nor a terminal end with another terminal end).

With poll/select protocols, the normal continuous function is polling and in most polled networks a high proportion of polls are answered by "no traffic" responses.

These responses have a secondary effect in that they indicate that the addressed clusters are functioning.

Polling is normally used in conjunction with multi-point circuits and, as mentioned in JENSheet 2 (Computer Weekly, October 20)

there can be from two (minimum) to 12 (maximum) clustered display systems per multi-point circuit (one per spur).

Burroughs Select; SYN, SYN,

EOT, PAD, SYN, SYN, ADI,

AD1, AD2, ENQ

IBM 3270 Select; SYN, SYN,

EOT, PAD, SYN, SYN, ADI,

AD1, AD2, ENQ

Comparing the poll and select sequences, it can be seen that Burroughs uses a lower case "p" to identify a poll and a lower case "q" to identify a select. The IBM 3270 poll and select sequences are identical and in this case each cluster controller is assigned two cluster addresses (AD1), one for a poll and one for a select.

Polling is not only used to solicit data, but also to solicit status information. This status information can be group status or specific device status. For example, polling is often used to ascertain when a printer (attached to a cluster) has completed the printing of a line, so that the computer can send the next line as soon as possible.

If a device is polled and has data to send, then this data is sent instead of a "no traffic" response. For transmission purposes, the data is normally divided into a number of blocks with the device address contained in the first block. Each block is acknowledged (ACKed) or NAKed by the computer (master).

In all data transfers, whether to or from the computer, the first and intermediate blocks are terminated by an ETB character and the final block is terminated by an ETX character.

A NAK sequence will cause the cluster to retransmit the block in error. When all the blocks have been transmitted and received correctly by the computer, then the computer will resume polling unless there is data to send to a terminal device.

Selecting is the procedure by

which the computer sends data to a selected terminal device (VDU or printer).

A "select" is a character sequence sent by the computer to inquire if a selected device can accept data from the computer.

Figure 2 shows the data transmission sequences for a typical select.

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Using a bunch
of modems
to transmit data
just a few miles?

Is the cost
of high-speed
modems driving
you bananas?

One US company has decided to preach its solution in graphical terms.

Microdata 1000

All systems go
in a desk top
workstation

The new M1000 workstation is a sophisticated desk top system for comprehensive business facilities and graphics. Communications protocols allow integration into any other Microdata network — and IBM.

The big plus which comes with the M1000 workstation — and with no other — is the proven easy-to-use Pick-based Reality operating system. This creates the Microdata Relational Environment enabling the executive to have, at his fingertips, relevant management information from the local company database.

A Natural Language facility enables the end user to use the system lucidly whilst Microdata's 'ALL' fourth generation Application Language, Liberator, gives the d.p. professional a powerful tool for software development.

Our One Thousand Hot Line will tell you more. Call Hemel Hempstead (0442) 61268 and find out why the Microdata approach to desk top computing produces all the right answers. Don't settle for less.

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Microdata is a McDonnell Douglas company.

Microdata

LANs are beginning to bear rich fruit

Linking terminals and micros cheap is the new trend, says Steven Sonsini

THE latest developments in local area network products show a new trend towards linking terminals and micros cheaply into large communication areas.

The use of gateway nodes to link separate clearway networks via telephone lines is one example.

Clearway is the network produced by Real Time Developments. Two gateway nodes join two Clearway rings, allowing communication between them. Higher speeds are possible; distance decreases with more speed.

In terms of market size and range of vendor support, Ethernet is probably the most significant example of a local area network. The Ethernet specification was originally developed by DEC, Intel and Xerox in 1979.

The fast data rate (10 million bits per second) of Ethernet soon became the model for networks from other manufacturers. But the level of interest shown by many users in the new type of local networks indicates that they, at least, can see a need for something different.

Consider the Network Systems Corporation of America, for example. NSC has developed a bus contention system that differs quite subtly from Ethernet. There are two systems available using the technique: Hyperchannel, which is intended for linking mainframes, minis and their peripherals; and Hyperbus, which is a slow speed version, intended for terminals and small systems.

Hyperbus is new to Europe, although it has been installed on selected US sites for at least 18 months and will soon support X.25, the packet switching protocol increasingly used in telephone links. Phone links were actually outside the original brief for networks, which were, after all, meant to be local.

Essentially, a local area network (LAN) was cheap. As the cost of peripherals decreased, companies cut prices even further, terminals and workstations proliferated at a great rate. This created the demand for low cost, convenient ways of interconnecting them locally.

Today, some manufacturers are promoting network technologies designed specifically for their own distributed processing and office automation systems — Wang and Prime spring to mind. But there are other companies trying to establish new local network concepts.

These new techniques are usually promoted on the basis of their data carrying capacity, their ability to combine data, voice and video, and their potential for multi-vendor compatibility.

When all the cabling is laid down, the software worked out and the transceivers or network interface units are added on, these networks can be expensive. A cheaper solution was found using the telephone network. At the centre of every telephone network is an exchange, which is capable of functions very different from those of a usual kind of network.

Each telephone on a site is connected by an exclusive line to the exchange, and through that to

the rest of the network.

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REPORT FROM AMERICA

Rocketing costs of innovation have resulted in a growth of limited high tech partnerships, says Bohdan Szuprowicz

Why research is being forced to go into limited partnership

RESEARCH and development is the lifeblood of high technology companies. Without it they wither and die within a few short years. Unless a high technology firm can spend an average 7% or more of its revenues on R&D it will have a hard time keeping up with the rapid pace of innovation.

Typically a high tech R&D limited partnership offers a tax shelter to wealthy individuals and institutional investors who are prepared to finance one or more specific projects over a number of years

ford Research Institute, a respected high technology consultant. The Behr Venture Partners Ltd — 1983 is a \$32 million limited partnership organised by Bateman Eichler Hill Richards, a brokerage firm owned by the \$8.8 billion Kemper insurance and financial services conglomerate. This partnership is providing almost 28% of its funds to Denelcor for development of the HEP II supercomputer; 25% to Automatic Devices for artificial vision, robotic "megagrasp", artificial intelligence expert systems, and Computer Controlled Workspace (CCW); over 21% to Bedford Computer for image generator, digital scanner and graphics terminals; over 14% to IMTEKS/Information Displays

compilers. However, the \$16 million Diversified Technology Partners, The Software Fund, and tiny \$2.5 million Indus Electronics Fund are more in the "blind pool" category trying to pool together all the funds from many limited partners before deciding what R&D projects to finance and for whom.

The largest high technology R&D "blind pool" to date is the

for electronic publishing hardware; and almost 12% to Digitalog for a new data communications network management.

Hutton/PRC Technology Partners with \$25 million, is the smallest of the major high technology R&D limited partnerships offered to the general public in late 1983. In this case Planning Research Corporation, a worldwide engineering and information services firm, teamed up with E. F. Hutton, a major securities firm.

So far there is little track record to evaluate the performance of high technology R&D partnerships but the rocketing costs of innovation and escalating competition in the financial community assure their future.

Microdata 1000

Brings Reality to the desk top workstation

The new M1000 workstation from Microdata has a unique feature which makes it stand above the competition: the Reality operating system.

World market leader in implementing Pick-based operating systems on the established Reality and Sequoia (M3000) mini-computer ranges, Microdata now puts the same ease of use onto the desktop. Total compatibility from range to range enables applications to be developed and run on an M1000 workstation, on linked M1000 workstations, on a Reality system or on the largest of multi-site Sequoia networks.

Find out today the many positive benefits which a Microdata M1000 puts at the end-user's fingertips. Call Hemel Hempstead (0442) 61268 now and ask for the One Thousand Hot Line.

And then don't settle for less.

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Wall Street ... High-tech firms need substantial investment for R&D.

SECURITY

When disaster strikes, how much data will you save?

Taking fire and security precautions seriously can sometimes save a business, writes Michael Wood

ON Wednesday evening fire broke out in the warehouse of a North Wales company. Within half an hour the offices and factory were wiped out. Their computer system and half their business records had gone.

The insurance records do not show it as a "computer fire", because the building was the major loss.

Most of the company's systems and program documentation were inside people's heads. This company was like almost every other. No one realised just how much the business would be affected by losing its computer system and data, because the risks had not been assessed.

Secure means safe against attack or failure. Computer security implies protecting systems from the effects of all manner of accidental and deliberate threats.

Any system exists in a hostile world surrounded by threats. The electric power supply may fail, especially in winter. The user may enter incorrect data, or purge the current master file. The software is bound to contain bugs, despite the most rigorous testing.

Rats may eat the underfloor cables, and destroy the communications network. This happened at a Bedfordshire establishment, so bait was put down beneath the floor to poison the rats. Unfortunately it caused further troubles. The poison dust got into the air-conditioning system, and the operators complained about the smell and the possible health risks.

Physical security is usually the first consideration. Access control and fire precautions are the two vital defences. Access control is essential for all computer areas.

"Need to know - need to go" is the foundation for much security thinking. Access control means that only authorised people are allowed within the controlled areas. In some cases they may be allowed access only at permitted times. For example, cleaning staff might be allowed access only in early mornings.

Many firms employ automatic systems to control access. They issue a badge or token to authorised individuals. The token may be a plastic card which can double as a visible identity badge. The cards carry a unique identity code which can be read by the correct type of reader device.

Many different kinds of code exist using a variety of physical properties. Magnetic stripe cards are familiar as credit and cashpoint cards. The dimensions are internationally standardised, and suitable card readers are readily available as OEM equipment.

Other cards use magnetic beads, or areas of ferrite embedded within the plastic. Another technique uses thin magnetic wires within the card - the "Wiegand effect". Where the wire is magnetised, it is polarity at the surface. Wires can be magnetised in opposite senses so that a reader can discover the coding.

Some tokens use printed coding.

laminated inside the card that can be sensed using infra-red light, since the plastic is relatively transparent to this. Ultra-violet light is used to read another type of card.

Access control readers for cards are either slots, as on a typical cash point, or "swipe" readers where the card is dropped in a narrow trough and passed sideways past a reading head. Sometimes these give teething troubles for new users who do not drop their card squarely into the slot.

Some systems use radio signals to interrogate the tokens. One has small transmitters, like personal pagers, worn by authorised people. Sensors near controlled doors receive coded signals from the transmitter, and release or open the door for people with the

right token. The system is "no hands", so it is convenient for those carrying things.

Another variant uses passive tokens, usually plastic cards carrying tuned circuits. These are interrogated by radio transmitters. The tokens have to be passed within say 10cm of the reader, though the token can be left in a wallet.

Tokens and readers have to be supported by some control system. This can range from a simple unit controlling one door to a complex computerised system covering several sites and thousands of people. The latest systems provide online monitoring and logging of activity, and are usually integrated with building alarm systems for fire and intruder detection. Based on typical small business computers,

they can be programmed to display specific instructions for the various events that might occur. This can be especially valuable for security staff.

The system can give advice about what to do, based on careful consideration by experts before the event. It is an obvious opportunity for knowledge-based-systems, that has hitherto been exploited chiefly in the nuclear industries.

Computers have a low inherent fire risk, but most computers have to be operated in buildings by people. The incidence of fires in computer centres is probably much the same as the incidence in offices generally.

Most of us know of small fires near computer rooms, especially when these are in ordinary commercial buildings. About one in 10 small fires grows into a big one.

Any fire in or nearby a computer centre can cause serious losses. A big fire will probably destroy the building - but little ones cause problems too.

Fire and smoke both pose threats to people. Smoke can be lethal well before the fire looks dangerous. Modern buildings and furnishings contain a great deal of plastic, much of which will burn, producing toxic fumes and dense smoke. Electric cabling is insulated with PVC, which produces corrosive smoke.

Many computers have been written-off after exposure to smoke, even though they were apparently unaffected. The manufacturer usually refuses to maintain the machine, on the grounds that its future reliability might be affected.

Fire precautions are a legal requirement in many countries including the UK. Insurance companies also insist on minimum precautions before they will afford cover. BS6266: 1982 Fire Protection for Electronic Data Processing Installations gives expert guidance.

The insurers are concerned about fire losses because of their high potential cost. Over the years they have accumulated a great deal of experience. The Fire Officers' Committee issues Rules for the Protection of Computer Installations Against Fire which covers topics like construction and air conditioning systems, as well as design and construction.

An unseen hazard in many otherwise excellent installations is inadequate fire-stopping at cable entries. A modern building will have good solid walls from true floor to true ceiling. Inevitably there must be routes for communications cables from the computer to the outside world.

Rapid growth means supplementary holes. All such holes should be plugged so that fire and smoke cannot pass through the barrier.

Original fire-stopping is often discarded in error when additional cables are passed through the existing routes.

Air conditioning systems are the source of many fires that disable computer systems. A minor electrical fault in a typical standalone unit can produce

integrated with the fire alarm system. The fire service will want to assess the system before it issues a fire certificate for the premises.

Fire is usually the most serious risk faced by any organisation. The problem is that although we are aware of its dangers, we ignore them. Fire precautions are treated with contempt.

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smoke and contaminating fumes. These will be dispersed rapidly to all parts of the installation unless the fire detection system has detectors within the air conditioning units.

An air conditioning unit on the top floor of a converted mill disabled another installation. One evening the half-inch cold water feed to the air conditioner burst.

By and large, there are three types of standby facilities available for consideration:

■ Hot standby: Twin computers are used with full switching capability to share common peripherals and mass storage. If one computer is down, processing can continue by switching jobs over to the second computer. Unfortunately the computers tend to be located back-to-back from each other and housed in the same room, together with the communications control equipment to facilitate swift changeover.

If a disaster such as a fire strikes in that room, all the equipment could be affected by the fire and additional remote disaster standby would need to be considered.

■ Warm standby: A remote installation is available to take on the processing of systems from the disrupted installation. A minimum delay of 24 hours is normally expected in the changeover of installations. The standby processing capability is normally restricted and would not handle the full processing requirements of the disrupted installation for any length of time.

To obtain standby processing from a number of back-up installations would necessitate the replication of files, job control and careful planning of staff transport and movements to ensure the processing load can be split and processed at different locations, probably all with slightly incompatible hardware, operating software and mass storage media.

Rarely has there been a concerted effort to involve senior business executives in discussions on standby considerations to try and define the company's business needs for standby processing.

Every installation should have proper back-up storage for data and programs, as well as all the other essential supplies like invoice stationery. Data safes are relatively expensive, but give good protection if used properly.

It is vital to have a data safe. Ordinary safes are designed to preserve paper in a hot fire, and are insulated to keep the inside temperature down for many hours. Paper will withstand about 130 degrees C, but magnetic media is far less tolerant. Floppies will stand only 32 degrees C, other magnetic about 60 degrees. A data safe has better insulation.

Few business executives appreciate that proper contingency planning requires a considerable amount of time and resource from both computer management and business users.

Some service vendors offer the temporary replacement of full minicomputer installations within 24 hours with the equipment transported to a designated site.

■ Cold standby: An empty installation is available at a remote site to receive new replacement equipment for the destroyed site. The cold standby site provides temporary accommodation for the new computer installations for up to six months. Portable computer centres are also available to provide temporary accommodation for replacement equipment near the destroyed computer installation. Proximity to the destroyed site would minimise the delay and cost of re-routing existing communication cable links in the temporary location.

In BIS' experience, computer disasters are rare. Every year some 20 to 30 fits involving computers were reported in the UK among a total population of 50,000 to 60,000 installations. The chance of a company suffering from a com-

SECURITY

How to cope with catastrophe

You've no time to experiment when disaster strikes — a standby plan is the answer. Ken Wong gives a rundown on things you should look at

puter fire is roughly one in a thousand.

On the other hand standby provisions cost money, more so for hot and warm standby than others.

While many computer service managers or data centre managers have been charged with obtaining some form of disaster standby provision to cater for possible disruptions in data processing.

Under or suffer a major setback in business operation, at the same time they have experienced great difficulty in obtaining a realistic budget for standby provisions to cope with an extended computer disruption.

In practice, many installations have resorted to a gut feeling of what systems the operations man-

agement planning strategy review, preparation of action plans, and testing of standby facilities and ac-

tions in the market place.

Without a proper appreciation of the extent of damage to business arising from an extended computer disruption and realising what is at stake, it is futile to plan and allocate appropriate resources for standby provisions to mitigate that risk.

■ £1 million of new business a week for a financial institution would be lost throughout the disruption period.

■ Between £2-3m of business a week to a manufacturing company would be at risk. If the products being manufactured are seasonal, a

and business implications to the company, arising from both short- and long-term interruption of computer service to various key areas of business and administrative functions.

Following are the highlights of some of the findings of business impact reviews conducted by BIS:

■ £1 million of new business a week for a financial institution would be lost throughout the disruption period.

■ Calculations of wages to hourly paid employees in a brewery would be held up. If disruption lasts for more than two weeks, unless agreement can be reached on alternative pay procedures, union with-

drawal of labour would be almost certain.

■ Monetary losses through opera-

tional inefficiency and lost busi-

ness opportunities in a large multi-national would come to £19m for the first week, rising to £50m a month, with a further £270m at risk; cash-flow delays of £40m would be incurred in the first week, rising to £170m for a month, with a further £270m at risk.

The review also identifies the operational requirements of various business systems.

Dr Ken Wong is manager, Secu-

rity and Privacy Division, BIS Ap-

plied Systems.

strikes can be disastrous . . .



An objective business impact review, conducted with senior computer users, would serve to establish the extent of their business dependence on data processing.

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Make sure you're protected from weather, mice and men

Lightning, mice chomping through cables and burglars all threaten the computer. John Vann looks at insurance

BY the end of 1983 it is estimated the British public had spent in the region of £300 million on home computers. That is a staggering £195 million more than in 1982. Current estimates also indicate that over a million home computers have been sold in the UK.

As for mainframe computers, the estimated value of such computers sold in the UK in 1982 was £1,492 million. Moreover, the estimated number of computers valued at over £15,000 installed in the UK in 1982 was \$3,746.

With about £140 million spent on microcomputers and peripherals over Christmas alone, it is hardly surprising that computers — alongside videos — are emerging as a popular target for burg-

Vending machines have overflowed and computer operators have stood on disc packs

lars. That could mean costly losses for their owners, unless they are properly insured.

The trouble is that the home computer boom is still relatively new in the UK — as is the business computer's — and so people are not generally aware that special insurance cover is available.

As far as computer insurance claims are concerned, it is not only burglars who create a menace. It's a fact of life that risks lurk in all our activities — and computer operations prove no exception.

If a computer is out of action for more than a few hours, this could result in considerable upset for a business, probably cutting off vital sources of information, not to mention the cost of repair.

The user may point out that certain protection comes under a maintenance contract or a manufacturer's guarantee. That's good thinking, but it is unlikely that either of these will pay the cost of repair when the damage comes from external sources or causes, or

through negligence. It is also unlikely that a contract or guarantee will pay for lost profits or revenue, or an increase in working costs following an accident involving the computer.

It's common sense that any business — irrespective of size or type — that has invested in a computer of any shape, size or cost should protect that valuable asset with adequate insurance coverage.

On the face of things, if a computer or system is installed in a firm's premises, there might seem to be no reason why it should not be insured along with all the other contents of the business. Such a method of insuring computer equipment, however, is almost certainly the exception to the normal way of doing things.

There are, in fact, practical reasons why special arrangements are generally made for insuring computers. For instance, the insurance company covering a firm's normal business contents, such as equipment, fixtures, fittings and stock, might not be keen on computer insurance and therefore might not offer an attractive contract cover or premium-wise.

With the cover given under a computer insurance policy, there is no "tariff" or standard wording. Each insurance company that transacts the insurance adopts its own policy working, terms, conditions and premium.

Perhaps initially we ought to consider some insurance policies specifically tailored for smaller computers, ie micros and minis, as these are popular businesses.

About a year ago a computer insurance package, underwritten at Lloyd's and called Compu-Risk, was launched by Wiggin Pollock, a firm of insurance brokers based in London. A vital part of the package provides for the cost of reconstituting computer records destroyed, together with any loss of profit resulting from the loss of the information.

In addition to basic cover of all risks of loss of, or damage to, hardware or media, several useful cover extensions are included.

These are reinstatement as new on all equipment up to five years old; automatic cover for additional equipment obtained; full cover on equipment during transit (also increased costs from any loss or damage); increased costs resulting from loss of, or damage to, media; loss resulting from malicious interference with software or data files; increased costs or loss of profit or revenue, whichever is most appropriate, resulting from any loss or damage or denial of access to computer equipment or records; and loss resulting from failure of British Telecom local lines or public power supply.

Under this package, if a Burroughs B80 computer valued at £20,000 is insured, the premium is likely to be around £200, whereas insuring an Apple II+ for £2,500 might mean a premium of about £25. These are only guides.

Another computer insurance scheme is available from Lloyd's insurance broker Stewart Wrightson, and from certain other brokers. The cover, which is conditional on the user's taking out a maintenance contract, is underwritten by Trident General Insurance Company, a leading office in the insurance of computers.

General Accident in Perth deals in computer insurance in its own right. It has a subsidiary, Scottish Boiler, with its own policy.

General Accident takes proposals from non-engineering insurance brokers, where the computer concerned is used for single-user systems costing more than £5,000. As the nature and extent of the cover provided is most appropriate, resulting from the application of the Protos-2000 manufacturing system developed by Powell Duffryn Systems to run on Digital hardware.

■ Richard Palmer (above) has been appointed director-general of the Business Equipment Trade Association, in succession to Richard Harrington, who has retired after 16 years. Palmer joined Huntley & Palmer in 1947 as a management trainee. He subsequently held a number of prominent positions within the company and was elected to the main board in 1955. In 1973, he was appointed chairman and chief executive of Associated Biscuit International. He also became heavily involved in the trade associations relating to the food industry, including the Trade Committee of the EEC for the Sugar Using Industries, of which he was chairman.

Another leading insurer, Commercial Union, also transacts computer insurance, and gives details of a few, recent incidents that have resulted in claims. Mice have nibbled through cables, vending machines have overflowed, drains have leaked, air conditioning plant has failed, and computer operators have stood on disc packs.

And an ICL 2972 was struck by lightning five times between March and July of this year. No one is safe, including you.

John Vann is a fellow of the Chartered Insurance Institute.

particular sphere is Eagle Star, another large company, with an attractive computer insurance policy giving wide cover at reasonable cost, though each quotation is based on its own merits.

General Accident in Perth deals in computer insurance in its own right. It has a subsidiary, Scottish Boiler, with its own policy.

One point of special note in respect to Eagle Star's contract is that should a computer have to be written off after a claim under the policy, a replacement model is allowed up to the sum insured, irrespective of whether the new model is a better computer.

This is an all risks insurance contract under which hardware and software are covered for almost everything — from being struck by lightning to having a cup of coffee spill on them. One interesting aspect is the inclusion of cover should there be accidental or malicious erasure of data.

Looking at the cost of this scheme, the premiums are 2% or less of the capital cost of the equipment. If capital outlay were £2,000, the annual premium would be £40. For a capital cost of

£2,001 to £3,500 the premium is 1 1/4% and for £3,501 to £5,000 it is 1 1/2%.

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■ H. C. C. (Bill) Jones has joined X-Dat as sales director. He will be responsible for setting up a team that will concentrate on OEMs and National Accounts.

Microsure is designed for systems with capital cost of up to £5,000, while Minisure is for multi-user or single-user systems costing more than £5,000. As the nature and extent of the cover provided is most appropriate, resulting from the application of the Protos-2000 manufacturing system developed by Powell Duffryn Systems to run on Digital hardware.

■ The appointment of Gerry Boundy as a consultant within the external products division has been announced by Powell Duffryn Systems of Basingstoke. He joins PDS from Normanair-Garrett and has specific responsibilities for the application of the Protos-2000 manufacturing system developed by Powell Duffryn Systems to run on Digital hardware.

■ The appointment of Gerry

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■ Andy Killick is now product engineer in charge of technical support at Hitachi Computer Products. He worked for 14 years at Rank Xerox, latterly as a senior staff engineer in the service centre development division. Derek Evans has been appointed area sales manager for the computer products division of Hitachi Sales (UK), after three years as area sales manager for the company's goods division.

■ Chris Leak has joined NEC

Business Systems (Europe) as as-

sistant general manager with re-

sponsibilities for marketing NEC's

range of microcomputers in the

UK and Europe.

■ Junct Day (above), founder member of the Institute of Word Processing, has joined Delta Data Systems as sales executive for the Northern Home Counties and the City. She has recently been co-opted to the Council of the Institute. Day started her career running a word processing bureau before moving to Olympia to sell business machines. She has joined Delta from Triumph-Adler.

■ Holman Hunt, managing direc-

tor of PA Computers and Tele-

communications (Pactel) has re-

signed.

■ Helping top and middle-man-

agers to evaluate data more effec-

tively and strengthen their plan-

ning skills is the

role of David O. Griffiths, newly ap-

pointed business consultancy man-

ager for Slough-based Man-

agement Decision Systems. Most

recently, as senior manage-

ment scientist with Mars Group Ser-

vices, Griffiths directed the design

and implementation of a corporate

strategic planning database for

Mars Inc.

■ A specialist in structured

methods and project manage-

ment with a major Lloyds insurance bro-

ker, Mike Smith has joined the Spain Group of companies as a senior consultant and lecturer. He spent five years with Stewart Wrightson and, as standards training officer, led a major project to introduce new training and pro-

ject management methodologies

throughout the Stewart Wrightson group.

■ Neville Reyner, 38, has joined the Mitsubishi Semiconductors' team as sales manager for the UK and Eire. He was previously with Fairchild Camera and Instrument (UK) as manager for OEM.

■ PA, the international manage-

ment and technology consulting

group, has announced appoint-

ments to its international board of

John Foden, since 1980 a mem-

ber of the UK board of PA and head

of PA Personnel Services; Peter Mc-

rigan, who became chief executive

of PA in Australia in 1981; and

John Jarvis (right), chief execu-

utive of PA Computers and Tele-

communications (Pactel) Europe.

Derek MacLaren, who until the

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■ CONFERENCES

■ Five seminars are to be held by Control Data Education Services Division during February at Control Data House, Shaftesbury Avenue, London WC2.

■ Introduction to Microcomputers is a one-day course on February 27. Subjects covered range from hardware, software, word processing, spreadsheet calculator and database management systems. The cost is £155.

■ How to Design and Build DP Internal Controls is a two-day course set for February 14-16. It is designed for anyone concerned with DP controls and subjects covered range from introduction to internal controls, installation controls, application system controls, system development controls and controls over system maintenance. The cost is £355.

■ Designing Secure Applications, on February 20-21 aims to provide practical guidance on how to design and secure computer applications. Subjects covered range from controls in a DP environment, designing controls for the user, a strategy for control, fraud prevention and planning against disaster. The cost is £255.

■ Computer Security, a two-day course set for February 22-23, will deal with the risks and security problems associated with computer processing. Subjects covered

range from secure application de-

sign, to fraud prevention and de-

tection. The cost is £255.

■ Through Simulation, B. W. Hollings, British Steel Corp, Institute of Mechanical Engineering Process Industry Division, will speak on auditing under the Commission of Audit. The cost is £155.

■ Microelectronics Assisting the Physically Handicapped, Prue Greenwood, British Polytechnic, BCS Oxford Staff Coffee Lounge, Oxford Polytechnic, will speak on the integration of financial, inventory control etc. Details from I. Gray, Dept. of Medicine, Hunts' House, Guy's Hospital, London SE1.



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PEOPLE



■ David Turner (left) has been appointed

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SENIOR APPOINTMENTS - £14K +

SALES MANAGER ZL

to launch new company.

c£35,000 p.a.+car Berkshire and SENIOR SALES EXECUTIVE c£25,000 p.a.+car

To assume total responsibility for the sales drive of this new company, you should be IBM trained with an in-depth knowledge of its plug compatible market.

With an agreement to sell reliable Japanese high-speed band printers, the company is poised for a publicity launch in the Spring. This venture will represent a new specialisation within a group already turning over in excess of £9 million per annum. Rapid growth has resulted from successful penetration into markets as diverse as electropics and microcomputers.

Reporting directly to the Group Chairman, you will have complete autonomy over the sales function. The holding company is geared to maximise the efficiency and profitability of its subsidiaries.

Consequently, each company is judged by its margins rather than the size of its turnover. All services are centralised and maintenance support are of the highest calibre.

In addition to this Sales Manager, we also wish to identify a young sales executive for whom self-motivation and commercial acumen are second nature. The growth potential for both positions is tremendous. In the case of the senior post it could be exceptional - the Managing Director has yet to be appointed.

For further information on either position telephone Marc Zundel on 01 236 7222 (or 01 602 0685 evenings/weekends), or write to him with full career details at:

ZL
ZUNDEL LITTLE,
49 Queen Victoria Street, London, EC4N 4SA.
Telex: 883968 HEADS

All applications will be treated in the strictest confidence.

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Systems Commissioner c.£26,000 p.a. tax-free in one of Saudi Arabia's finest hospitals

The National Guard King Khalid Hospital in Jeddah is managed by the British-based International Hospitals Group (IHC) in liaison with the British government; the venture is supported by IAL.

It is a hospital which combines the highest traditional standards of health care with the latest in medical technology. It has comprehensive Administration, Patient Management, Patient Care and Laboratory Services systems based on multiple linked 11/708 operating under RSTS/E and using DECNET.

As Systems Commissioner, you will be responsible to the Computer Services Manager for the acceptance of systems, their testing, the planning of clerical procedures and for identifying required equipment. With a systems staff under your supervision, you will ensure that the highest standards are maintained in the use of systems and procedures.

With a degree or membership of an appropriate professional institute such as Associate membership of the British Computer Society or the Institute of Data Processing Management, you should have at least five years in systems planning, installation and on-line computer systems. This should include 3 years experience in the management of hospital EDP systems.

WHAT YOU WOULD EARN WITH IAL

The figure quoted is based on a salary of c.£24,000 p.a. (SR120,000) at a conversion rate of SR5.0 = £1, plus a bonus of one month's salary for every 12 months satisfactory service, which is paid as a tax-free lump sum at the end of your time with IAL in Saudi Arabia.

Benefits include free accompanied status accommodation and education allowance, 49 days annual holiday with free return flights to the UK and free medical care. There are excellent on site facilities which include shops, gymnasium, theatre, swimming pool, tennis courts and restaurants.

Preference will be given to suitably qualified Saudi Arabian nationals and to other Arabic speaking personnel.

For further details send your c.v. to Senior Recruitment Officer at IAL, Aenidio House, Hayes Road, Southall, Middx UB2 5NJ. Tel: 01-574 5432 Please quote Ref. M018.

IAL

MEDICAL SERVICES
MANPOWER SERVICES

HONG KONG SALES EXECUTIVE SUBSTANTIAL EARNINGS PACKAGE ACCOMMODATION, CAR, ETC.

Due to continued expansion in the Far East, the world's leading supplier of packaged application software needs a Sales Executive for its Hong Kong office. The appointee will be required to call on top executives of prospective client companies in Hong Kong and the Philippines, as well as manage existing clients in both areas.

This is without doubt an exceptional opportunity, providing professional challenge, good career prospects and a very substantial earnings package, supplemented by accommodation, medical care, car and annual leave with passage to the U.K.

A mature person is preferred, aged 30+, with the self motivation and

organisational skills necessary for working in a small remote office.

The ideal candidate will be married without school age children, although these preferences are not essential.

Please contact MARK IRENS quoting reference CW0902/3.

International Telecommunications Services was formed in 1972 as a telecommunications systems company. ITS provides system and software design, equipment supply, installation and maintenance, and the provision of a spare service available from a network of service centres throughout the world.

Due to the expansion of the company and its markets ITS now requires two additional sales engineers. Both sales engineers must have experience of data communications/telecommunications with proven sales records, maturity and business acumen.

Ref. No. MC001/84: Applicants for this post must possess a thorough knowledge of the airline industry.

Ref. No. MC002/84: Applicants for this post must have an IBM background and a knowledge of the market.

Attractive salaries, with commission, are offered for both posts and other benefits include a company car and contribution towards life assurance scheme. Applicants, in the first instance, should write, enclosing s.a.v., to:

OEM SALES MANAGER

£15-30K package + car
With responsibility for selling range of impact and non-impact printers. The candidate should have a minimum of five years' background in the computer and/or computer industry. Selling experience essential. In addition to the salary, relative to experience, this position enjoys a range of excellent fringe benefits. Please contact Mrs Shireen Bleach on: Woking 71991 for application form.

DIABLO SYSTEMS LTD.
Regent House
20 The Broadway, Woking, Surrey

its SALES

International Telecommunications Services was formed in 1972 as a telecommunications systems company. ITS provides system and software design, equipment supply, installation and maintenance, and the provision of a spare service available from a network of service centres throughout the world.

A highly experienced operations professional is required, with organisational and man management skills added to a good understanding of data processing and office automation. Applicants will need to demonstrate ability in:

* controlling the diverse activities within a busy data centre
* working with systems and technical management, as well as suppliers, on current issues and forward plans
* liaising with user representatives on service levels and requirements
* representing the operations function convincingly to managers at all levels inside and outside the DP organisation

Our client's modern offices are located in a low cost housing area with excellent road and rail links to London. Facilities include a free restaurant, free life assurance, an excellent pension scheme and an active sports and social club. If appropriate, relocation assistance will be offered to the successful candidate.

Applications in strict confidence under reference DCM 15360/C, will be forwarded unopened to our Client, unless you list

the companies to which they should not be sent in a covering letter marked for the attention of the Security Manager:

ESSEX

We are seeking a manager for a major IBM computer installation in Essex. Our client, the UK leader in its field, is highly successful and profitable, and offers a progressive and secure career. Data processing facilities are a vital part of the business process, and this is reflected by the current and planned levels of investment. The present configuration includes 3083 and 3032 CPUs, 3380 and 3350 disk, and 9700 laser printers, together with a network of distributed processors and over 450 terminals.

A highly experienced operations professional is required, with organisational and man management skills added to a good understanding of data processing and office automation. Applicants will need to demonstrate ability in:

* controlling the diverse activities within a busy data centre
* working with systems and technical management, as well as suppliers, on current issues and forward plans
* liaising with user representatives on service levels and requirements
* representing the operations function convincingly to managers at all levels inside and outside the DP organisation

Our client's modern offices are located in a low cost housing area with excellent road and rail links to London. Facilities include a free restaurant, free life assurance, an excellent pension scheme and an active sports and social club. If appropriate, relocation assistance will be offered to the successful candidate.

Applications in strict confidence under reference DCM 15360/C, will be forwarded unopened to our Client, unless you list

the companies to which they should not be sent in a covering letter marked for the attention of the Security Manager:

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WE'VE GOT WHAT YOU'RE LOOKING FOR!

NORTHWEST

PROGRAMMERS, ANALYSTS AND SENIOR PROGRAMMERS

to £12,500 NORTH

This installation offers excellent career opportunities to well educated DP staff who have a minimum of 2 years experience of COBOL on HONEYWELL hardware. Programmers must have on-line and database, whilst Analysts, in addition to a programming background, must have good business experience which includes user liaison.

PROGRAMMERS EAST MANCHESTER

£7,000 to £8,500 + subsidised mortgages

Progressive financial house who greatly value their staff offer career positions to young coders with at least two years experience of ICL COBOL. Preference will be given to applicants with M1.29 and/or TM1/TM2.

SYSTEMS PROGRAMMERS SOUTH MANCHESTER

to £10,000

The company, a household name in the domestic high technology market, are offering excellent career progress to successful applicants who will have experience of IBM hardware under DOS/VSE using PL/I and/or CICS.

PROJECT LEADERS, SYSTEMS PROGRAMMERS NORTH

to £12,000 & £14,000 respectively

Candidates should be aged under 35 and have a classic DP background. Project Leaders must have a good business/commercial acumen with management experience in a DP environment. Systems Programmers (required at a variety of levels) will have sound ASSEMBLER experience. Superb career opportunities in a progressive DP Department which offers a first class benefits package.

Contact JOHN LEVINS or GARY SMITH on Leeds (0532) 455911 during office hours, or JOHN LEVINS on Leeds (0532) 741419 evenings and weekends, or write to the address shown right.

IBM PROGRAMMERS, ANALYSTS, SYSTEMS ANALYSTS MANCHESTER £8,000 to £14,000 based

Well respected Systems/Software House who have recently opened a Northern Office have vacancies throughout the North for IBM specialists with a minimum of 3 years experience. Permanent positions offering medium and long-term advancement where particular requirements are for expertise in COBOL, CICS, DL1 and SYSTEM 38.

BUSINESS/SYSTEMS ANALYSTS SOUTH WIRRAL c. £9,500

This is a good career move for Business oriented Analysts. Ideally you will have experience of Data Analysis and/or Production Control, but these are not essential requirements for a move into this large company.

ANALYSTS/PROGRAMMERS LANCASHIRE £9,500

This major manufacturing company who are dedicated to continued expansion utilising computerisation, offer varied career opportunities to A/Ps with a minimum of 3 years experience. Main requirements are for DC Mini experience with programming in COBOL and FORTRAN.

PROGRAMMER/ANALYST MERSEYSIDE £8,000 to £10,000

An excellent opportunity for a DEC Programmer to progress into Analysis where the work will involve interactive languages. Major retail organisation which uses MUMPS.

REAL-TIME PROGRAMMERS/DESIGNERS MANCHESTER/SWEDEN c. £10,000 + Overseas Subsistence

This leading Systems/Software House offers superb opportunities to applicants with 2-4 years experience of PASCAL on any Micro, although MOTOROLA and INTEL are preferred. Permanent positions offering an initial year in Sweden with the opportunity to renew or to transfer to the UK or elsewhere overseas.

SYSTEMS PROGRAMMERS c. £11,000 LIVERPOOL

Applicants must have at least two years experience of IBM ASSEMBLER and DOS for this major installation which offers challenging and exciting career prospects.

ANALYST or SYSTEMS ANALYST LAKE DISTRICT c. £9,000

Applicants, preferably aged 25 to 35, must have at least 3 years good systems analysis experience involving both mainframes and minis or micros. The next 3 years in this DP department will include a total review of all systems and accordingly significant Database and Business Systems experience are essential, preferably with exposure to manufacturing/production/commercial environments.

DEVELOPMENT PROGRAMMERS SUPPORT PROGRAMMERS SOUTH MANCHESTER £9,000

These positions only apply to recent Graduates and offer an exciting and challenging opportunity to join new teams developing commercial products. Particular requirements include a minimum 18 months post grad programming experience and a detailed knowledge of any of: COBAL, PASCAL, "C", PL/1, PLSYNS, Z80 or Z8000 ASSEMBLER and a familiarity with any of ARGUS, UNIX, ZRTS, MTOS, CP/M or MSOS Systems. Programming expertise using IPA, SNA, or DECNET would also be useful.

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Whatever specialist job you're looking for, rely on the Lorien service. This is because we are the most knowledgeable computer service and sourcing company in the business. We know your language so we can pinpoint the job you want. We insist on the best because you do too. See for yourself at the latest selection of jobs we have this week. If you don't see exactly what you're looking for here, ring us anyway - we can help. Then you'll hear we say at Lorien - got it.



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Recru Consultants.
O.C.S. House, 100, Road, Leeds LS7 1NJ
1455911

PROGRAMMERS LEEDS to £20,250

You will need a minimum of 2 years COBOL experience and knowledge of TP based applications for these newly created positions with an expanding Blue Chip Company. Major developments in Manufacturing, Commercial and Production Systems are planned and prospects are excellent.

PROGRAMMERS NEWCASTLE to £7,900 + major benefits

Programmers with a minimum of 18 months ICL COBOL experience, are sought to undertake development roles on this large mainframe site. Any experience of VME IDMS or TPMS would be preferred, but is not essential, as training will be given.

TECHNICAL PROGRAMMER NORTH YORKSHIRE £8,400

This multi-national research organisation is currently seeking to fill a key position within its development department. A solid FORTRAN background and in-depth knowledge of research based applications are a must. Experience of micros and/or database systems would be of interest.

PROGRAMMERS LEEDS to £10,000

Programmers at all levels can expect rapid career progression with this progressive PDP installation. You will need a minimum of 12 months commercial systems experience combined with thorough BASIC+ /RSTS expertise.

ANALYSTS WEST YORKSHIRE to £11,500

Analysts at all levels are sought by this major user to fill several newly created posts. You should be able to offer broadly based commercial systems experience and ideally will combine this with exposure to on-line and database applications. These are excellent opportunities within a secure and growing environment.

PROGRAMMER/ANALYST WEST YORKSHIRE to £10,000

The essential requirement for this position is 3 years IBM COBOL experience gained within a DOS environment. You will work on the development of large financial applications and experience in this area would be an additional advantage.

PROGRAMMER/ANALYST WEST YORKSHIRE £8,500

This progressive software house is seeking a Programmer/Analyst with a good ICL background to undertake a customer support role. Sound ICL COBOL is a must whilst exposure to Transaction based systems would be a plus.

SENIOR ANALYST/PROGRAMMER TYNE & WEAR £9,000

A small SYSTEM 38 site is currently seeking a senior level Analyst Programmer. You will need good RPGII programming experience, sound knowledge of the analysis discipline and can expect to work with a high degree of autonomy.

PROGRAMMER WEST YORKSHIRE to £10,000

A highly professional software house developing systems around HP hardware is currently seeking a Programmer to undertake a range of development work. A minimum of 12 months HP 3000 COBOL is required and knowledge of IMAGE and VIEW would be preferred.

PROGRAMMERS SHEFFIELD to £7,500

This high technology company, developing real-time terminal systems, is currently seeking two good programmers with solid ASSEMBLER experience. Hardware background is unimportant but strong motivation and the desire to progress are essential.

TECHNICAL SUPPORT PROGRAMMER WEST YORKSHIRE £neg. (minimum £10,000)

UNIX Specialists are sought by this major hardware manufacturer to act essentially in a consultancy role. You will support a wide range of users throughout the region and can expect varied and stimulating technical involvement.

PROGRAMMER LEEDS to £10,000

A highly professional software house developing systems around HP hardware is currently seeking a Programmer to undertake a range of development work. A minimum of 12 months HP 3000 COBOL is required and knowledge of IMAGE and VIEW would be preferred.

SYSTEMS ENGINEER WEST YORKSHIRE £12,500

This major manufacturer requires several people to strengthen its customer support team and play a key role in planned expansion. You should have good analysis and programming experience and ideally will have a software house/services background.

Provident Life are an established Life Assurance Company (a member of the world-wide Winterthur Swiss Insurance Group), currently situated close to Liverpool Street Station. The company intends to relocate to Hampshire within the next 2 years.

Extensive development has taken place over the past few years and we now operate large and complex real-time and batch systems on two ICL 2958 processors. In addition, two Systime mini computers (DEC-PDP11) are used, running under RSTS/E.

As a result of the company's commitment to further major development, we have the following requirements.

Systems Analyst c. £11,500

Candidates should have a minimum of 2 years experience, preferably gained in a financial environment, that has covered the major phases of a development project. Knowledge of ICL IDMS would also be a distinct advantage.

Analyst/Programmer c. £11,500

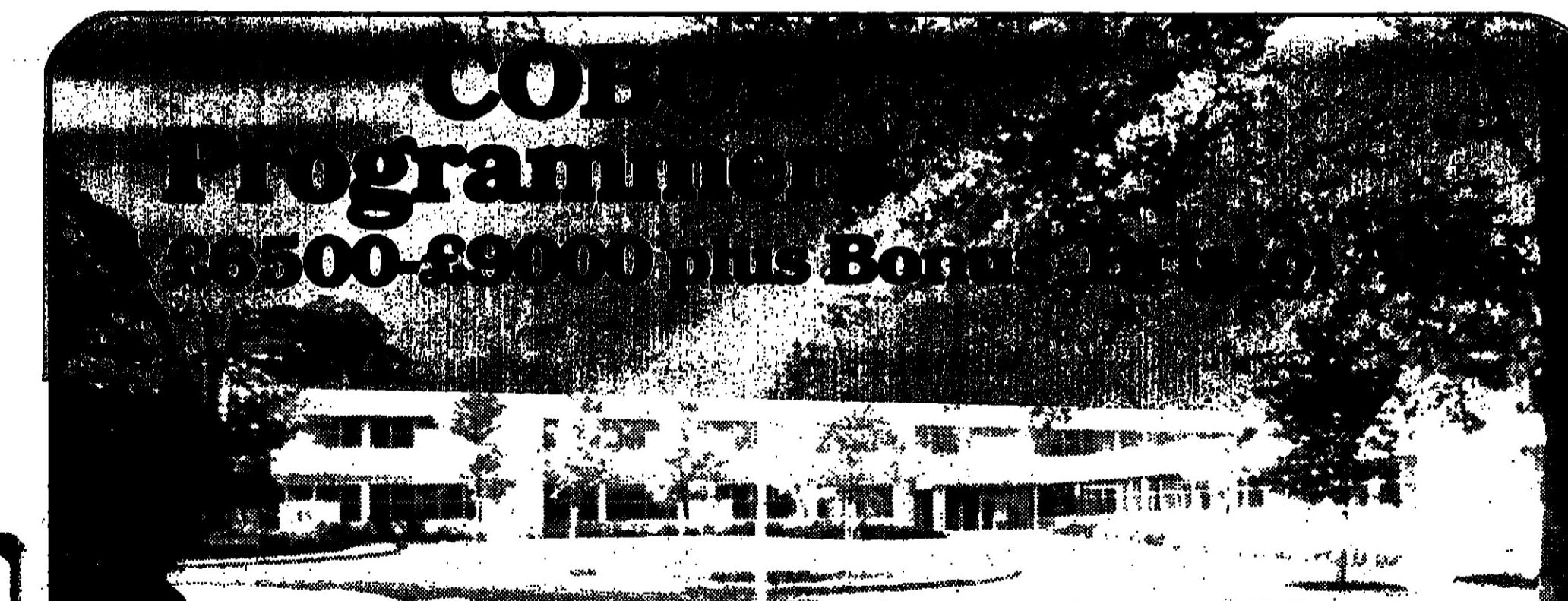
For this position the ideal candidate should have 3-4 years experience including a solid ICL COBOL background coupled with sound systems experience. Formal systems training would also be desirable.

Assistant Operations Supervisor c. £10,000

Applicants will probably have held a senior position in the operations area such as chief operator or shift leader and will therefore be able to work on their own initiative. Sound experience in most of the following areas is essential:

- DME Operating & Utilities
- VME Operating
- Q2+ Macro Writing
- VME SCL Writing

However the most important attributes are self motivation, adaptability and the genuine desire to make a varied and all round contribution to the running of the operations section.



Our Client, a major International Group, is currently engaged in the development of a nationwide network of HP3000 mini computers.

Additional openings now exist for Programmers to join the Company's elite Group Development Department based at their impressive Head Office complex which is situated in a pleasant rural setting, North of Bristol.

Technical, Sales & Management Appointments

If you can demonstrate up to 18 months solid COBOL experience in a mini computer environment (preferably HP3000, although this is not essential) then our Client can offer:

- * Competitive salaries:
- * Substantial bonus:
- * Training (where appropriate):
- * Good prospects for advancement into Analysis and Project Leader roles.

Conditions of employment are good and include generous relocation assistance where necessary.

For further information and application form, contact Ian Payne, Major Account Manager at the SCR Birmingham Office on 021-238 3761, alternatively write to him with brief career details at the Birmingham address shown below.

provident life association

If you think you have the drive and relevant experience for any of these requirements please call Christine McLean on 01-734 7394, to discuss the positions or send your CV to this address:

WARWICK WOODWARD
43-44 GREAT WINDMILL STREET,
LONDON W1V 7PA.

SOUTH James House, 49 James Street, London W1M 5HS
01-935 0471/0485 0481

MIDLANDS & INTERNATIONAL 35-37 Great Charles Street, Queen's Square, Birmingham B3 3LY
021-238 3761

NORTH International House, 84 Deansgate, Manchester M3 3EE
0161 433 0427

BELGIUM Avenue Louise 327, Brussels 1071 H.N. Amsterdam
010 322 7467/71
HOLLAND Willemsparkweg 92, 1071 H.N. Amsterdam
010 322 70847

Specialist Computer Recruitment Ltd.



Logistix Recruitment Limited
10 Grenville Place, London SW7 4RW

Telephone 01-373 3063

Service Manager

Inner London: Salary to £12K + Bonus
A leading supplier of UNIX based micro-systems and networks is poised for a period of rapid growth. The Company has recently established a nationwide Service and Support Division having its Head-Office in The City. Our Client is seeking a Service Manager, probably aged 27-35 years with at least 3 years experience gained in a similar capacity with a micro systems supplier or manufacturer. The position on offer is both exciting and exciting.

Ref: L/6/A

Systems S/W Development

W. Home Counties: Salaries to £16K
Software Engineering Professionals are currently required by the development division of a leading U.S. Systems Supplier. Suitable applicants should hold a first or second class honours degree in Computer Science, Mathematics, or Electronic Engineering, supplemented by at least two years software development experience in a real-time mini-computer or microprocessor environment.

Ref: L/6/B

Process Control

London: Salaries to £16K
A leading U.K. Systems House and Consultancy is currently seeking Programmers, Analysts, Programmers and Consultants for its London-based Industrial division. Applicants should be graduates with a minimum of twelve months real-time industrial programming experience. There is a strong preference for candidates who are familiar with PDP 11, VAX 11/780 or HP 1000 hardware, but candidates who have software development experience on other mini-computers should not be deterred from applying. For the more senior positions, you should have current or recent experience in process control applications particularly within the food, drugs or energy industries.

Ref: L/6/C

Micro Data Base Development

London & H. Counties: Salaries to £12K
Programmers and Analysts. Programmers familiar with the latest relational database management techniques are urgently required by a number of our clients. Familiarity with Report, D Base II or any of the databases capable of being run on a leading micro-busines system is essential, and should preferably have been gained during the development of

Ref: L/6/D

Coral 66 Programmers

S. Home Counties: Salaries to £11K
Applications Programmers and Designers are currently required by the software development division of a leading Systems Supplier. Suitable applicants should offer a minimum of eighteen months CORAL 66 programming experience in a real-time mini computer or micro-processor environment. Particular hardware experience is not important, but familiarity

Ref: L/6/E

CAD/CAM Sales Executives

E. Midlands: Salaries to £30K (O.T.E.)
Our clients have recently negotiated an exclusive distribution agreement with a leading supplier of 32 bit UNIX and ETHERNET based CAD/CAM systems. To capitalise on this revolutionary product, the Senior Sales Executives are urgently sought for the East Midlands and City offices. Successful candidates must demonstrate a continuous level of achievement and commitment in the

Ref: L/6/F

Macro 11 Programmers

Hants/Berks: Salaries to £11K
Macro 11 Programmers, with at least 12 months post-graduate industrial experience are required by a small but rapidly expanding Systems House. As their current needs are largely in the field of distributed multi-microprocessor and mini-computer based systems, they are particularly keen to attract candidates with such experience. More

Ref: L/6/G

PICK Software & Applications

Thames Valley: Salaries to £13K
PICK is increasingly thought of as a viable technical and commercial competitor of UNIX. A number of manufacturers and systems suppliers have requirements for PICK Application Programmers and Systems Development Engineers. Previous programming experience under UNIX within either academic or industrial environments

Ref: L/6/H

UNITED STATES IBM 8100 OR SERIES 1

Our client, a major supermarket chain located in a lovely rural area of New Jersey, is so delighted with the quality of the people they have so far recruited from UK, that they are looking for a further 10 programmers and analysts to join their permanent staff.

There is a vast amount of new development being carried out, and Series 1 programmer analysts must have first class EDL and EDX knowledge, and good business skills. They will be part of a team developing new software products for automated supermarket stores using advanced scanning technology.

8100 programmer analysts must have really sound COBOL and DPPX experience, and will be developing advanced on-line warehouse systems, incorporating stock control, accounting, vehicle routing etc.

Working conditions are excellent, and successful applicants will receive a final interview in New Jersey, a full US salary and a comprehensive family relocation package. This is a lovely area of the United States, close to beaches, State parks and mountains. Call me today for an information pack and application form, or send me your résumé.

Clive Williamson 0604 711209 9 a.m.-9 p.m. any day

Computer & Management Personnel
72 Kingsley Road, Northampton NN2 7BL

The IBM SYSTEM 34/36/38 Recruitment Specialists

MARCH COMPUTER SYSTEMS LTD., one of the UK's leading software houses specializing in IBM Systems 34/36/38 now have the following openings:

RPG III Project Leaders Analyst/Programmers

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Join us to work in our unique environment developing systems on our In-House Systems 36/38 for blue-chip clients in the UK and abroad:

Bespoke Systems

Multicurrency Distribution Package

MRP-II Software (Data-3 Package)

To apply please call Richard Milne on 01-354 1055 during office hours or on 01-958 2553 during evenings and weekends. All response will be strictly confidential.

MARCH COMPUTER RECRUITMENT LTD.
1 NOEL ROAD, LONDON N1 3HQ
01-354 1055

COMMAND AND CONTROL

SYSTEMS DEVELOPMENT AND MARKETING To £20,000

The highest standards of excellence, across a broad spectrum of applications, has earned Software Sciences an enviable reputation for providing successful systems. A professional approach combined with technical expertise, has enabled us to become one of the largest systems houses in the UK.

High availability, real-time operational computing, communications and information systems are essential to effective command and control in emergency services. An increasing market for our services internationally has produced an opening for a project leader to contribute to our progressive and substantial growth.

We are seeking candidates with a good technical background in the command and control/emergency services field, who will be responsible for the definition and development of business strategy for police, fire and ambulance systems. These services may involve a mixture of consultancy, design and development of software and products and turnkey systems.

Currently working in a Software House or in an operational environment you should have a broad knowledge of technical and applications developments in the field, and want to be heavily involved in marketing the products or systems designed. You will be preparing business plans, providing technical support, monitoring development progress, evaluating products acquisition and providing consultancy services.

In return we offer an excellent salary, a wide range of company benefits and assistance with relocation where appropriate.

Location: Farnborough, Hants.

For further information, please ring our consultant Francesca Drinkwater or send a detailed C.V.

SOFTWARE SCIENCES

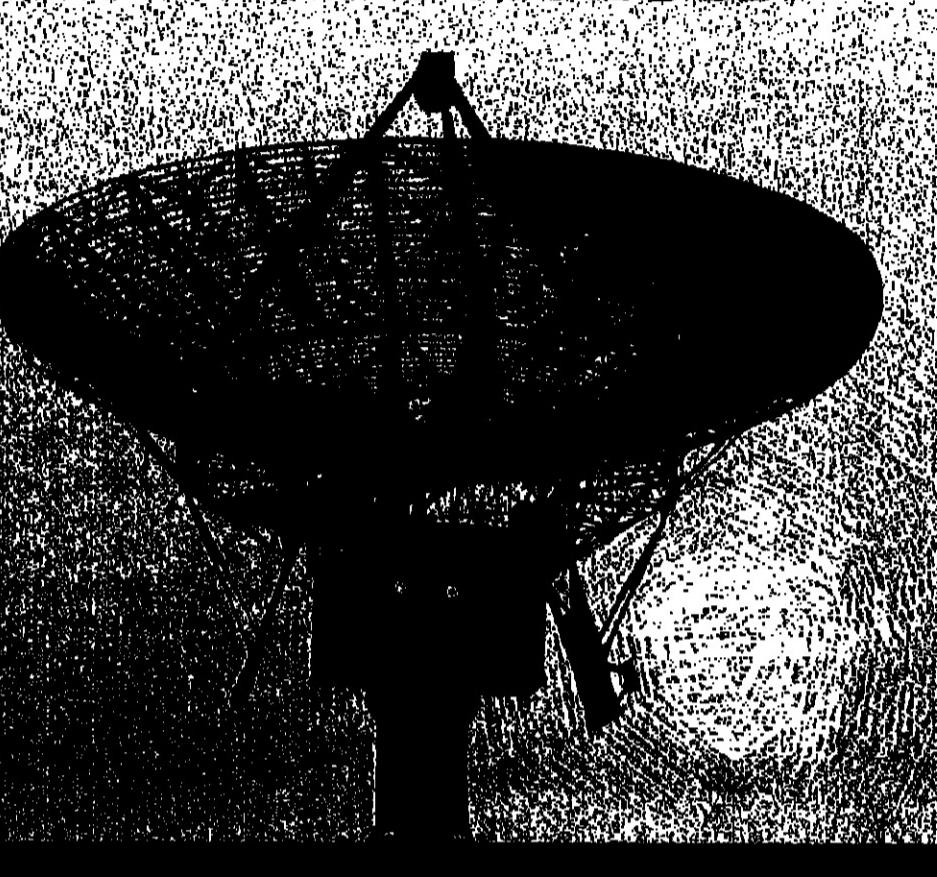
EMERGENCY SERVICES

D.P. Recruitment

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S8002

The Power of Observation



RPG Analyst/Programmer Ready to become a D.P.M.?

Essex

c. £11,000

This is an ideal opportunity for a competent Analyst/Programmer to move into a management position. Initially, the main emphasis of the job will be the implementation of new manufacturing systems.

Our client is an agricultural engineering company with international markets, part of a £180 Million turnover group. The company has had an IBM System 34 for over 2 years, primarily to run Order Entry and Accounting elements of MAAPICS.

The incoming DPM will be required initially to implement production systems, again using MAAPICS. Thereafter, responsibilities will include overall control of the D.P. Department, all further development and ad-hoc user requirements. Reporting directly to the head of finance, the DPM position has much potential. The company has a great deal of commitment to modernising its systems and methods. This may necessitate an upgraded computer system within the foreseeable future.

If you feel confident about meeting this challenge please contact ABRAKAS today. The entry qualifications are 3 years Programming, Design and Analysis experience using RPGII. Additionally you must have some exposure to IBM System 34 or 36, Manufacturing Applications (preferably MAAPICS) and user liaison.

Conditions of Employment include 25 days holiday, excellent pension scheme and negotiable salary reviewed after 3 months of service.

To discuss this position further please contact VIVIANE GREEN of ABRAKAS, preferably by telephone on 01-388 0111.

COMPILER EMPLOYMENT LTD.
100-102 High Street, Chelmsford, Essex CM1 1AB
TELEPHONE 01245 444444

01-388 0111

Software Sciences is at the leading edge in developing radar software, setting the pace with complex high integrity, high availability real-time systems. Powerful radar is essential to operational systems in civilian and military air traffic control, marine navigation and weather radar processing in all of which we are established on an international level.

We are seeking candidates with a good education and a solid background in real-time systems design. Projects currently under development include civilian and military air traffic control and weather data processing systems - specific application areas include:

- ◆ signal processing
- ◆ tracking algorithms
- ◆ radar data processing
- ◆ flight plan information systems
- ◆ data base systems

Depending on experience areas of responsibility will include, software design, systems design, team leadership and project management. Experience of one or more of the following machines, DEC PDP11, VAX, Texas Instruments, Hewlett Packard or special purpose hardware and interfaces highly desirable.

Although based at Farnborough, Hants, candidates should be mobile as visits to client sites may be necessary.

In return we offer an excellent salary, a wide range of company benefits and assistance with relocation where appropriate.

For further information and an application form, please telephone our consultant Francesca Drinkwater or simply clip and return the coupon below.

SOFTWARE SCIENCES

D.P. Recruitment
5th Floor, One Grosvenor Gardens, Bilton House, 54-58 Uxbridge Road, London W5 2ST
Tel: 01-587 5501 (24 hour answering)

NAME _____
ADDRESS _____
HOME TEL. _____
WORK TEL. _____
S8001

SENIOR APPOINTMENTS

Sales Executives

London Home Counties Advanced Data Communications

Due to rapid expansion, Dynatech Communications wish to appoint Sales Executives for London, Herts and Essex. Successful candidates will be involved in selling a sophisticated range of data communications equipment, including:

- * Protocol Analysers
- * Matrix Switches
- * Statistical Multiplexers
- * Network Management Equipment
- * Network Control Equipment
- * X.25 Communications Processors

Annual target earnings will be in excess of £20,000 plus car, together with other benefits expected from a major international organisation.

Ideally you will be aged 25 to 35 with a degree or HNC in Electrical or Electronic Engineering and a background in Data Communications and/or Computer Equipment. Previous sales experience is not essential.

Stop Press!

Product Specialists

We also require Data Communications Specialists to operate within the Sales environment. Experience with communications protocols would be an advantage. Salary will be negotiable, according to experience. A company car will be offered together with excellent benefits.

For further details of both positions, please telephone Julian Kirkness today on (0628) 74274, or write to him at Charvil Lewis International, 27 Marlow Road, Maidenhead, Berks SL6 1AE.

Charvil Lewis
INTERNATIONAL

on behalf of



(776)

Account Managers

High Basic Salary

£25-£30,000+Car

BERKSHIRE/MANCHESTER

X-DATA LTD is a wholly owned subsidiary of the Dyneer Corporation, a financially strong USA company with clear objectives for increased penetration of the European computer and peripherals marketplace.

As part of this planned expansion, the company's recently appointed Sales Director seeks professional sales executives to increase growth within existing and new OEM/National Accounts areas. Products include the highly successful OKI™ printer range, new daisy-wheel and monitor products and potentially IBM™ compatible communications equipment.

To take advantage of these career building opportunities, you must be aged 25-40 and have:

- * Proven sales success in peripherals/microcomputers plus
- * Strong technical knowledge of these product areas plus
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An understanding of PAL TV techniques would be an advantage as would video processing chains.

The position is based at our Central London Studios and includes a generous pension scheme and free life assurance.

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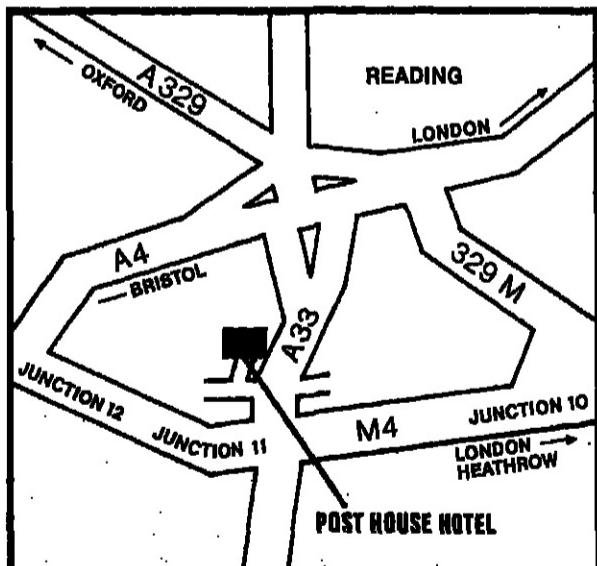
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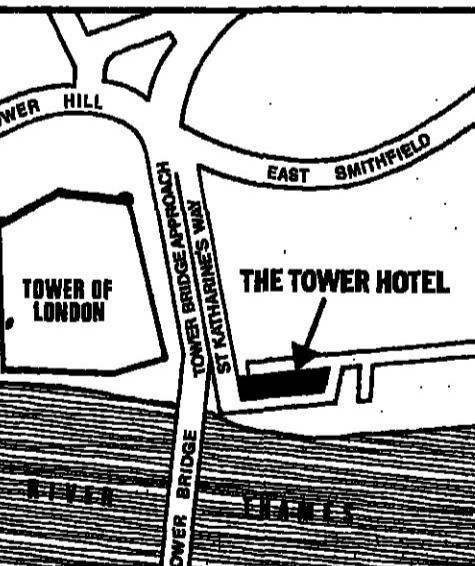
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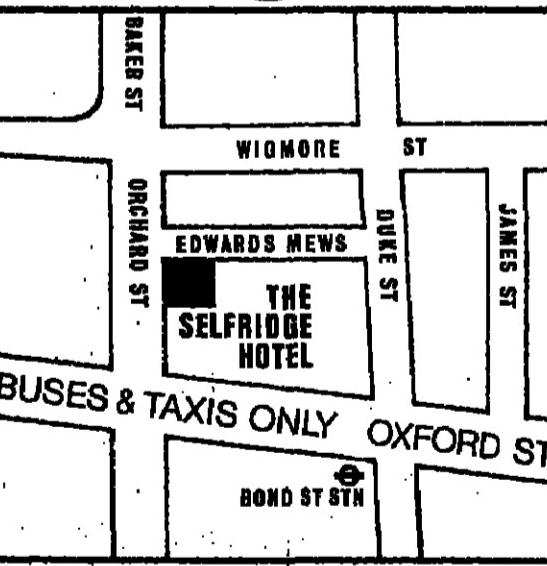
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The bank has been a dedicated DEC user for several years and runs its Total Banking package together with VMS and DECNET on a network of five VAXes of which one VAX 11/780 is solely deployed to development work.

The successful candidates should have a solid programming background within a DEC environment to include at least one year with any VAX equipment. The ideal language would be MACRO 32 but the bank are prepared to retrain and therefore wish to interview analyst/programmers with MACRO 11 or any high level language. Applicants should be well educated and be good communicators but more importantly should have the ability and drive to join a team of enthusiastic analyst/programmers working in a stimulating environment. Previous banking experience would be an advantage.

To find out more about this excellent career opportunity please contact Sean Orsler on 01-404 4821

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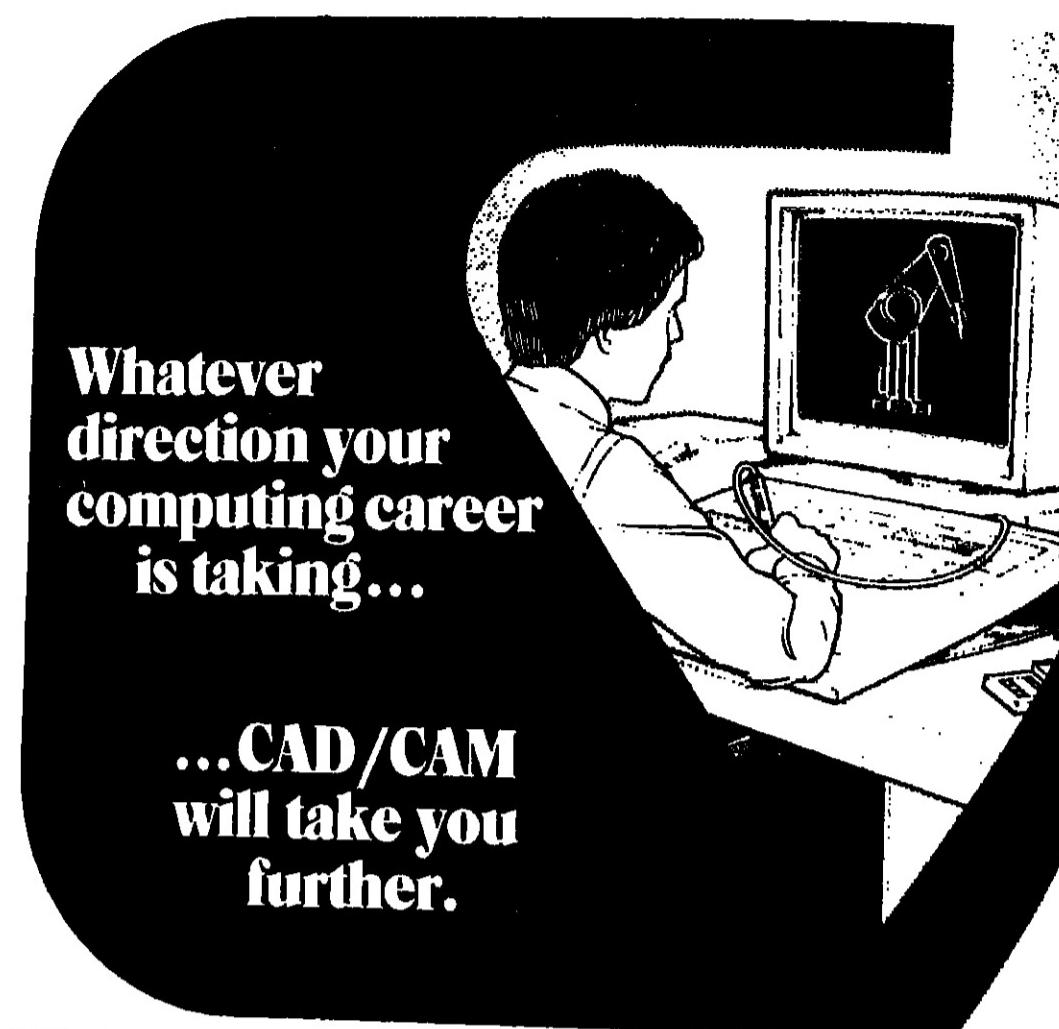
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PRIME/PRIMOS, IBM/TSO OR VAX/VMS.

You should have led a team through a successful product development cycle. You should be prepared to produce results to an agreed project plan within demanding timescales. You should be familiar with the problems of the Engineering/DP Interfaces in Industry and be confident in leading a team of both engineers and computer specialists. Proven experience is more valuable than formal qualifications.

Please send a c.v. or phone for an application form, quoting reference JMAS 01, to Mrs G. M. Dodd, Personnel Manager, CADCentre Limited, High Cross, Madingley Road, Cambridge CB2 0HB

Analyst/Programmers

You need a strong FORTRAN, preferably 77, programming background and experience of working with formal software development procedures in a technical environment. You should be conversant with at least one time-sharing command operating system.

Manufacturing industry experience would be an advantage. You will have an innovative approach to your work and be able and willing to communicate with your team colleagues.

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DEC, ANY LANGUAGE CITY AND ESSEX TO £11,000 Two clients, one large and the other small, require commercially experienced DEC Programmers and Analysts/Programmers to work on insurance systems. There is client contact involved including international travel, MACRO or ASSEMBLER useful, but any DEC language will be retained.

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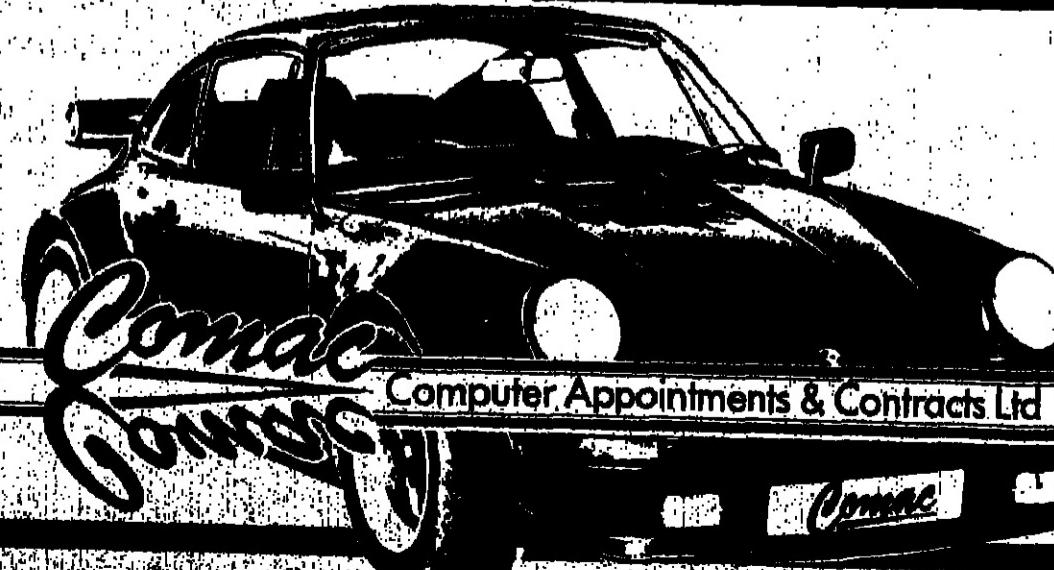
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Greater Manchester Police is one of the largest Forces in the country with a comprehensive programme of computerisation. The Force is currently installing a major computer system based on Tandem hardware incorporating criminal records, message switching and an associated data network linking Headquarters to divisions and sub-divisions. The Force is also in the process of installing, developing and planning a number of other administrative and operational systems.

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SYSTEMS ANALYST	P01/2
ANALYST/PROGRAMMER	P01
PROGRAMMER	S01/2

Salaries within the range £9,060-£11,703.

The Systems Analyst will work on departmental management systems. Experience of mini and microcomputer systems is desirable and implementation experience must be demonstrable. About six years' D.P. experience is required.

The Analyst/Programmer will work on operational systems. You should have experience of large databases using fast response on-line systems, together with about four years' D.P. experience.

The Programmer will assist the above posts. Experience of a commercial language is essential and the use of a microcomputer language would be desirable.

The posts, although on the County Treasurer's establishment, are within the Police Computer Projects Branch which is based at Force Headquarters in Trafford, Manchester. For an informal discussion phone Andy Softley, Project Leader, on 061-872 5050 extn. 2782.

Application form, job description and further details available from the County Treasurer, Greater Manchester Council, Piccadilly Gardens, Manchester M60 3HR.

Closing date 15th February 1984.

Ferranti Computer Systems Ltd.

Senior R&D Engineers

Hardware/Software

Man-machine Communication - Bridging the gap

Ferranti Computer Systems Limited is at the forefront of research into man-machine interaction.

Our Systems Research Group, based at Bracknell, is involved in the evaluation, design, application and demonstration of sophisticated techniques and equipment used to interface between man and machine.

Specific areas of activity are:

Image Simulators
Display Controllers
Speech Recognition and Synthesis
Graphics Languages

We are seeking creative engineers to continue development in these areas and with the initiative to pioneer new techniques both in man-machine interaction and the field of artificial intelligence.

FERRANTI
Selling technology

(7545)

17729

Software Programmers

Warley, Brentwood

Up to £12,725

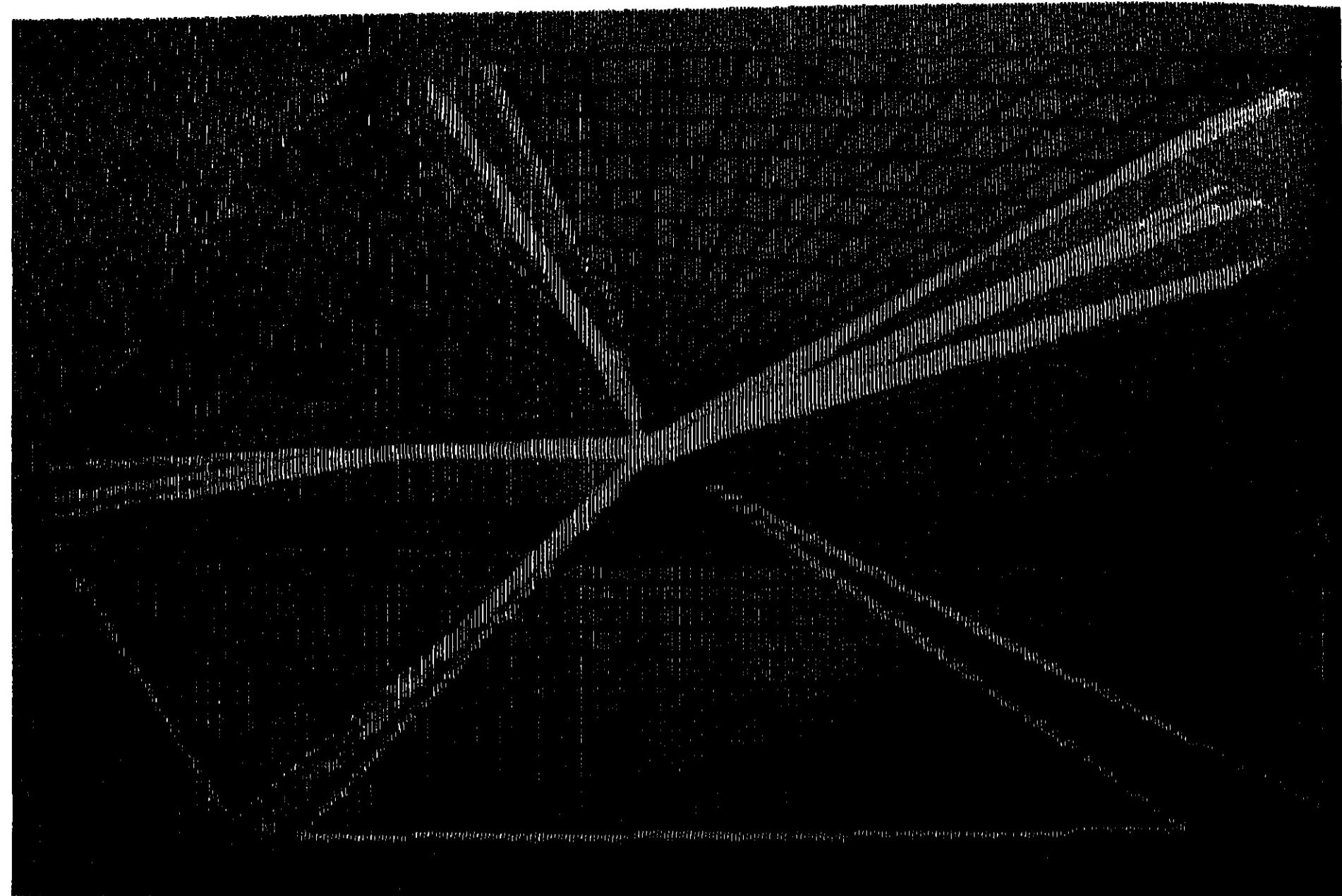
on a rapidly expanding on-line network. We are now looking for several Software Programmers to join our experienced team. The people we need should have at least 3 years' experience in MVS - and experience with IMS or VTAM would be an advantage - with a Computer Science/Scientific degree or equivalent.

These vacancies, which involve some European travel, are offered at a starting salary within the range of £9,598-£12,725 p.a., according to qualifications and experience.

If you have the experience and flexibility to succeed in this challenging and vital area of computer systems, there can be few finer career moves. Write to J.E. Flinders, Room 1/578, FORD MOTOR COMPANY LIMITED, Eagle Way, Warley, Brentwood, Essex CM13 3BW, or telephone for an application form on Brentwood (0277) 253412 or 252149.

Job in tip





The Art of the Science of Software Engineering Exploited

1984
IDE

At IDEC, we talk about Software Engineering, Advanced Communications, CAD, knowledge-based and expert systems... but our primary purpose is to turn good ideas into useful and competitive innovation... software innovation.

Our Systems Division is involved in the design and implementation of real-time dedicated systems. We enjoy pre-eminent success in several markets including Digital, PABX, Teletex, Packet Switching and Local Area Networks. Our technologists train to exploit an extensive range of in-house tools. These include design languages: UNIX and C; together with some very advanced verification and test tools.

At IDEC you will learn fast. Not just because we devote considerable resources to education and

training... but mainly because our style is one of disciplined freedom... highly professional. Success is measured in terms of quality and delivery. Working conditions could hardly be better.

Substantial growth in 1984 calls for well-educated specialists to produce high quality software. Salaries are very competitive. The relocation package is generous.

If you're intrigued by innovation and the art of the science of software engineering, then this is the time to talk to us.

Contact David Duerden for a preliminary discussion in confidence on 0438 726161, or write to him for our DataPack at STC IDEC LIMITED, Six Hills House, London Road, Stevenage, Herts SG1 1YB.

The centre of excellence in Software Engineering

STC IDECLIMITED



Technical Consultants Senior Programmers Programmers to £14,000

to join our expanding System Development Centres in London, Birmingham and Manchester

Rapidly increasing client demand means that we need to recruit additional top quality professionals to work on our challenging projects. To meet our requirements, you should have upwards of two years solid experience in one of the following disciplines:

IBM COBOL with CICS & DL/1 or IMS DB/DC

ICL COBOL running under VME with IDMS or TPMF

HP COBOL or PASCAL using IMAGE, VIEW or QUERY

For the more senior positions you should also have proven design and supervisory skills.

The salaries and benefits (including six-monthly salary reviews) reflect the standards we expect from our staff, and working for Hoskyns will mean advancing your career in a challenging environment.

Interviews will be held in London, Birmingham or Manchester, so to find out more about these opportunities, or to arrange a meeting for discussion, please call Louise Romain, our Recruiting Consultant, on 01-407 2531 between 9 a.m. - 9 p.m. including weekends. Alternatively, you may send your C.V. to her at:

Hoskyns Group Limited, Lynton House, 7-12, Tavistock Square, London WC1H 9LT.

Louise Romain

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Martin Marietta Data Systems

(7765)

ANALYST/PROGS VAX/PDP

to £14,000

ALL LEVELS HP 3000

to £15,000

ANALYST/PROGRAMMER DATABASIC

£11,000

We have been retained by several London based companies to recruit experienced Systems and Programming staff with a DEC biased background and between one and four years' programming in either BASIC, FORTRAN or MACRO. Progressive positions are offered in the development of systems ranging from the financial to technical in both end user and software house environments. Attractive benefits packages are available and early supervisory slots are ready for more experienced applicants.

ANALYSTS LONDON

to £13,500

We have been retained by three London-based companies to recruit Analysts with varying levels of experience. A sound D.P. background is required with preference given to candidates with general accounting application exposure. All positions involve extensive work on new projects and offer good career prospects. Perks are varied and include large company benefits and discounts and relocation expenses where necessary.

CONSULTANT ICL

c.£13,000

Package

A rapidly expanding Software House, based in Middx. is seeking a Systems Analyst to take a vital role as a Consultant working with a wide client base. The position will involve close customer liaison with all aspects of project working from definition through control. If you have at least two years' analysis and a desire to take an active part in a company's development this is a challenging and rewarding opportunity.

ANALYSTS/PROGS BURROUGHS

to £11,500

C. London company is currently looking for Analyst/Programmers to join their expanding team working on a variety of financial applications. Applicants should have a minimum of 18 months' COBOL to include some exposure to BURROUGHS systems. Any CMS experience will be of particular interest.

Successful candidates will enjoy a good deal of client contact and must be professional in both appearance and attitude. Good prospects and conditions are offered.

ANALYST/PROGRAMMER PL1

£11,500

A company offering a range of financial services has several requirements for PL1 programmers. The minimum requirement is for 18 months' PL1 in a commercial environment for the programming positions and up to four years' plus for the senior posts. Applicants should have good all round programming skills to include design, coding and implementation. Due to the size of the client there is a recognised career path which would lead through to systems if desired.

ANALYST/PROGS ICL/COBOL

to £11,500

ANALYST/PROGRAMMERS RPG/I/RPGIII

£11,000

Due to major systems development this Kent-based company urgently requires Progs. and Analyst/Progs. for its ICL VME/DME installation. A minimum of 18 months' COBOL gained preferably in any commercial ICL environment is required. The positions offer good promotion prospects, training and benefits package to include relocation where necessary.

ANALYST/PROGRAMMERS ENQ

£11,000

We have many clients, all of whom are SYS34 or SYS38 users, who have current positions for programmers and analysts. Applicants should have a minimum of six months' RPG from a commercial background through to three years' + for the more senior positions (any MAAPCS would be of special interest). The companies range from Banking through to Manufacturing and offer a wide range of benefits.

404 4821

Apex

Apex Computer Recruitment Ltd.
59 Grays Inn Road, London WC1X 8JL Tel: 01-404 4821

Programme Your Future and Analyse Your Prospects

Our clients have commissioned us to identify people for these URGENT requirements.

We have many other exciting opportunities for computer staff, particularly Programmers and Analysts, and would be very pleased to hear from you if you are considering a career move.

Your first step to pursue these exciting career opportunities is to telephone ANTHONY HALL, Computer Search & Selection, Hamilton House, Marlowes, Hemel Hempstead, Herts HP1 1BB. Tel: Hemel Hempstead (0442) 40761.

Computer Search & Selection

SYSTEMS ANALYSIS

CENTRAL LONDON

up to £12,000

DOES THIS OPENING MEET YOUR CAREER REQUIREMENTS?

- MODERN TECHNIQUES: database, on line and communications systems; high standards
- FORMAL TRAINING: a planned programme to enhance your skills
- PURE ANALYSIS: with a good proportion of development work, entirely in London
- VARIETY: mainframe, minis and micros; projects ranging from small to very big; team or individual responsibility
- PROSPECTS: very sound, in a busy installation, with ample new projects and opportunities for advancement.

This opportunity will interest either

- SYSTEMS ANALYSTS with upwards of two years' analysis experience (the application background is not critical, as our clients will provide retraining where necessary), or
- ANALYST/PROGRAMMERS who wish to move to systems analysis work.

If you feel that a move to a major, up-market installation would help your career, please ring us in confidence for a talk; quoting ref. 191. If it is more convenient for you to ring outside office hours, your message will be recorded.



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52-53 Margaret St. London W1N 7FF 5796

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you on Valentine's Day!

At the Lorien Cheese & Wine Party

At Lorien, we don't aim to keep our intentions a secret. If you are in Computer Contracting we want you to know where you can go for a long lasting relationship, rather than a sudden infatuation.

That's why this is a unique opportunity for you to call in to the Lorien Cheese and Wine Party, at Seftons Bar, (opposite Marks & Spencer), Corporation Street, Manchester, from 5.30p.m.-9.30p.m., on Tuesday 14th February. Find out all you need to know about computer contracting at all levels-with Lorien.

You needn't just take our word-some of our highly satisfied existing Contractors will be on hand to give you their side of the success story.

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Recruitment Consultants, One House, Bertha Road, Leeds LS7 1HE, Tel: LEEDS 01532 455011

Dixons

As the next stage in their development of d.p. facilities Dixons, the well known electrical retailers, are about to implement an IBM 4381 computer running under MVS. The machine is due for delivery in May 1984 and this decision has created a requirement for the following personnel:

TECHNICAL SUPPORT MANAGER

circa £18,000pa plus car and excellent benefits

Based at the Operations Centre in Stevenage, the Technical Support Manager will report to the Computer Centre Manager and will have line responsibility for the day to day support of a mixed machine environment with a large point of sale network. Duties will include the management of 4 Systems Programmers, two of whom will be experienced systems programmers who will be retraining for IBM. The successful candidate will face a major challenge in implementing the new machine and will be heavily involved in advising senior management about establishing an IBM environment.

Applicants should be able to demonstrate good management skills, a capacity for problem solving and the ability to communicate their ideas effectively. Previous experience of establishing a systems support role within an MVS/CICS environment is essential and previous knowledge of networking and machine linking would be a distinct asset.

2 SENIOR SYSTEMS PROGRAMMERS

circa £15,000pa plus excellent benefits.

Reporting to the Technical Support Manager, the Senior Systems Programmers will be involved in supporting the operating software of the IBM 4381 machine. One of the successful candidates will have a major responsibility for the MVS operating system and the other for the CICS environment, and experience gained in either or both of these areas is essential. A knowledge of database systems also would be desirable.

These positions represent an exciting challenge for systems programmers to develop their careers in a green field situation. The successful candidates will have the satisfaction of using their problem solving skills to make a significant contribution to Dixons future d.p. developments.

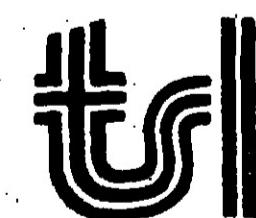
THE ENVIRONMENT

Machines: IBM 4381 Model 2
Tandem
ICL Point of sale network

IBM Software: MVS/JES 2
CICS
VTAM/NCP
RACF
TSO/SPF

RELOCATION EXPENSES WILL BE PROVIDED WHERE NECESSARY FOR THESE POSITIONS.

For further details please phone Chris Morrow of Total Selection who have been retained to advise on these appointments.


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LIMITED**

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01-837 0451

Widen your Horizons...

In 1984 our Client will be continuing with a major programme to extend their operations further across growth industries. They are working now on 'leading edge' software and hardware to develop solutions for a wide range of applications. Their horizons are expanding as fast as technology.

Project Leaders to £14K Package + Benefits

Central London

To lead large bespoke or application package development projects. Positions involve control of all aspects of application software development from initial client contact to implementation.

Applicants should have at least five years' DP experience with a background in COBOL or BASIC. Some previous supervisory experience is essential.

To maintain their growth they require additional personnel. They are looking now for people who want to develop their skills. They offer exciting new opportunities to become involved in a range of projects and have the resources to see them through. They could provide the chance you have been seeking to develop your career and widen your horizons.

Software Engineers to £12K Package + Benefits

Central London and West Midlands

To help develop software for intelligent terminal products in new business applications areas. The systems utilize advanced networking techniques that will interest candidates with communications software experience.

Applicants should be experienced in ASSEMBLER and/or PASCAL and should enjoy working on innovative developments which shortly will include voice recognition technology. A degree of client contact is expected.

UNIX® Specialists

£attractive and £negotiable

London West Midlands Leeds Edinburgh

To provide technical consultancy services to customers implementing 'leading-edge' computer systems supporting UNIX software.

Applicants should have in-depth experience of UNIX or its derivatives and enjoy a high degree of end-user contact.

Programmer Analysts

to £12K Package + Benefits

Central London

To work on the design and coding of customer applications. The positions will involve some client contact. Applicants should have at least two years' experience with a background in ASSEMBLER or 'C'. Appropriate training will be given where necessary.

In addition to the basic salaries, which will be reviewed in June, the Company operates a twice yearly bonus scheme based on Company profits. Also there is a wide range of benefits including a non-contributory pension scheme, a private medical insurance plan and a holiday discount scheme.

Instructors

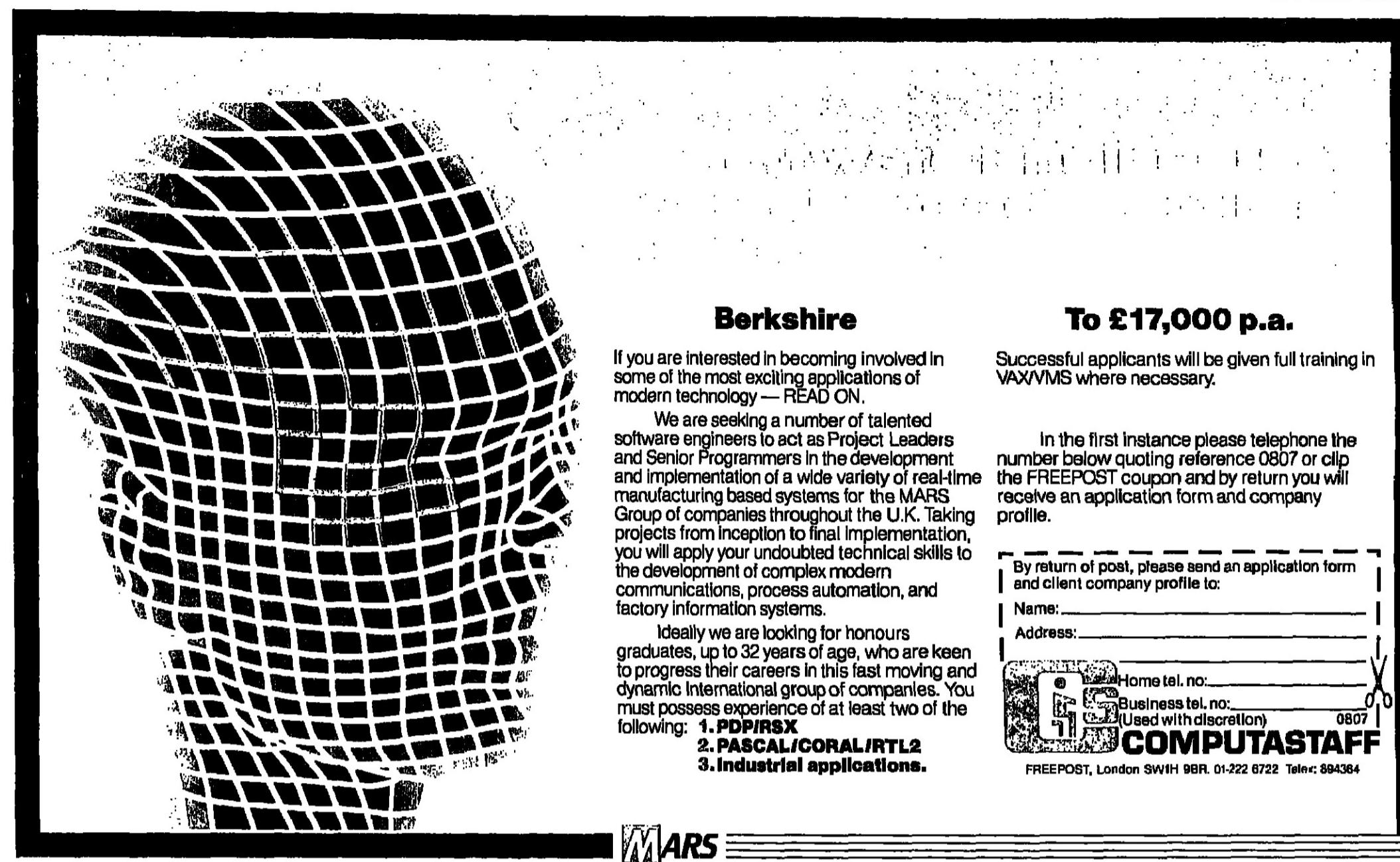
to £11.5K Package + Benefits

West Midlands

To assist in extending a range of internal and external training courses to include operating systems and high-level languages. Experience specifically in UNIX, 'C', PASCAL, BASIC or COBOL would be desirable.

The positions offer scope for candidates to undertake training assignments abroad as required. Suitable candidates without teaching experience will of course be trained.

In the first instance applicants should telephone 01 935 0671 and ask for John Pitt, Senior Consultant at the London offices. Initial interviews will be arranged at the appropriate SCR regional office, at which time further information about the Company and the appointment will be made available.



Berkshire

If you are interested in becoming involved in some of the most exciting applications of modern technology — READ ON.

We are seeking a number of talented software engineers to act as Project Leaders and Senior Programmers in the development and implementation of a wide variety of real-time manufacturing based systems for the MARS Group of companies throughout the U.K. Taking projects from inception to final implementation, you will apply your undoubted technical skills to the development of complex modern communications, process automation, and factory information systems.

Ideally we are looking for honours graduates, up to 32 years of age, who are keen to progress their careers in this fast moving and dynamic international group of companies. You must possess experience of at least two of the following:

- 1. PDP/RSX
- 2. PASCAL/CORAL/RTL2
- 3. Industrial applications.

To £17,000 p.a.

Successful applicants will be given full training in VAX/VMS where necessary.

In the first instance please telephone the number below quoting reference 0807 or clip the FREEPOST coupon and by return you will receive an application form and company profile.

By return of post, please send an application form and client company profile to:

Name: _____

Address: _____

Home tel. no.: _____
Business tel. no.: _____
 (Used with discretion) 0807

COMPUTASTAFF

FREEPOST, London SW1H 9BR. Tel: 894364

MARS
GROUP
SERVICES

Network Facilities Manager

To £13,000 + Car

We wish to recruit a Network Facilities Manager to be responsible for all aspects of communications within a new subsidiary Company in Bristol. This position is at a high level within the Company and represents a challenging and progressive opportunity, consequently we seek a true professional with sound experience and high levels of self motivation.

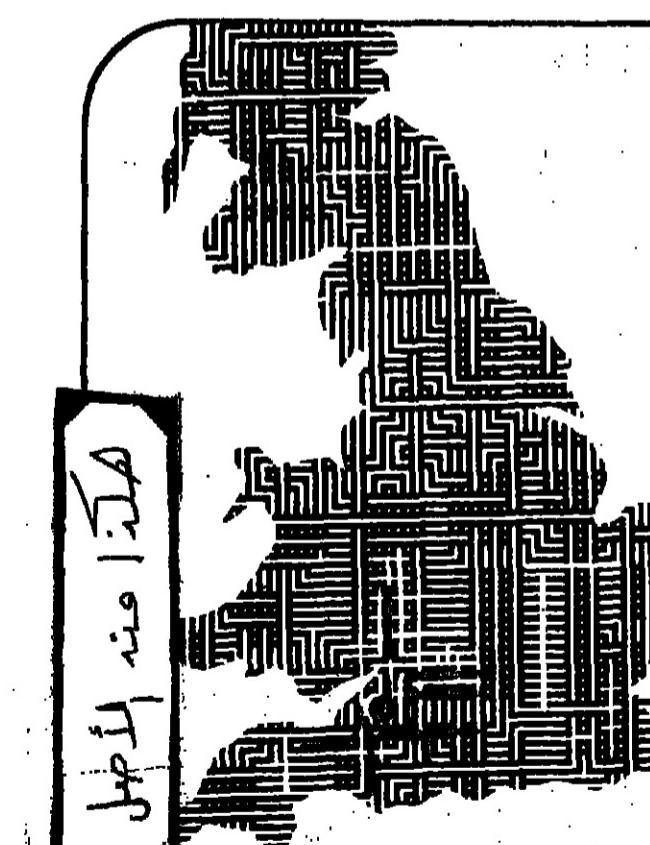
You are probably in your late 20's, with a background that includes experience in an Operations/Comms capacity within an in-house installation, very likely enhanced by time spent in a DP Services Organisation. Certainly, your career has been moving towards a specialisation in Communications and Networking.

Consequently, you now feel ready to assume a responsible position to reflect your experience, within a new, sophisticated real-time facility, yet retain a desire to maintain a 'hands on' involvement with both Terminals and Comms equipment.

We regard your Comms knowledge as the key factor and do not place importance on any specific hardware bias. We do however, wish to appoint an individual with the character and ability to liaise effectively with Senior Management, Users and Suppliers.

Our Comms Network will comprise of around 200 terminals utilising state of the art techniques such as the British Telecom KiloStream service to various processing centres.

To apply, contact our Advising Consultant, Ian Mason, on 021-236 8781 or at home on 021-353 5721 (7.00 - 9.00 p.m.) All applications will be received in strict confidence.



Bristol

Technical, Sales & Management Appointments

Specialist Computer Recruitment Ltd

SOUTH James House, 46 James Street, London W1M 5HS. 01-833 0671/486 0461
MIDLANDS & INTERNATIONAL 35-37 Great Charles Street, International House, 84 Deansgate, Manchester M3 3EE. 021-236 3781
NORTH 1071 H.M. Amherst, 1071 H.M. Amherst, 016 3125 7151/71
BELGIUM Avenue Louise 327, 1071 H.M. Amherst, 010 322-840 7151/71
HOLLAND Willemstraatweg 92, 1071 H.M. Amherst, 010 3120-7808/47

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Tomorrows Software In Your Hands

Application Software Manager To £20,000 plus Car

WEST HERTS plus RELOCATION

With the merger of two of the U.K.'s leading retail automation manufacturers, our client is now the largest British company in the field of data capture and order entry systems. The key to their success lies in their response to the ever changing market needs by providing a "total solution" approach employing systems design, portable equipment, application software, communication systems and project management. The company specialises in the provision of systems for major manufacturers and distributors of consumer goods.

A vacancy exists for an Application Software Manager to play a vital role in the Company's increasing commitment to the development of an already comprehensive product range.

The primary objective will be to lead a team of designer/programmers in the design, implementation and proving of sophisticated application software for all major customers. Responsibilities will include all aspects of team management, project & resource planning and identification of new software systems for future products. The first priority will be, as always to provide the best possible service to the customer.

Applicants should possess strong managerial skills, sound commercial awareness and a broad technical background including 'hands on' design & programming ideally in the field of microelectronics. Candidates who are sales orientated, energetic and adaptable should be able to demonstrate the maturity and professionalism that a position of this importance demands.

For further information please telephone our consultant David Drake or send a detailed C.V.

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"I never realised a register would have people searching out a job for me."

Many of them don't.
But Lansdowne Appointments Register does.
For instance Raj, our DP Director, will be scanning the Register every day for you on his 10-megabyte computer. Richard, Graeme, John, Sandra, Robert of our job-search force will be on the phone. Keith, our Regional Director, will be talking face to face with employers.

The minute your profile form arrives at Lansdowne all these people and more will be actively searching for vacancies that suit you.

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It just 3 days, one Lansdowne job-seeker was approached by 27 employers. That's because the brief Lansdowne profile form tells employers just what they need to know to pick you out for a job offer.

But no more than that.

Over 12 years introducing job-seekers to employers we've trimmed and honed the questions we ask you into a lean fighting form employers welcome and use.

That's why every day employers add new vacancies to Lansdowne Appointments Register in 283 different job categories.

We could have one in there for you right now. And the Lansdowne service is absolutely free to job-seekers.



Lansdowne

Appointments Register

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London W3 7QB.

Please send me a Lansdowne
Appointments Register job-finding pack.

NAME _____
JOB TITLE _____
ADDRESS _____

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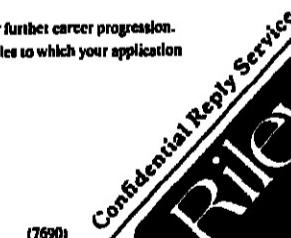
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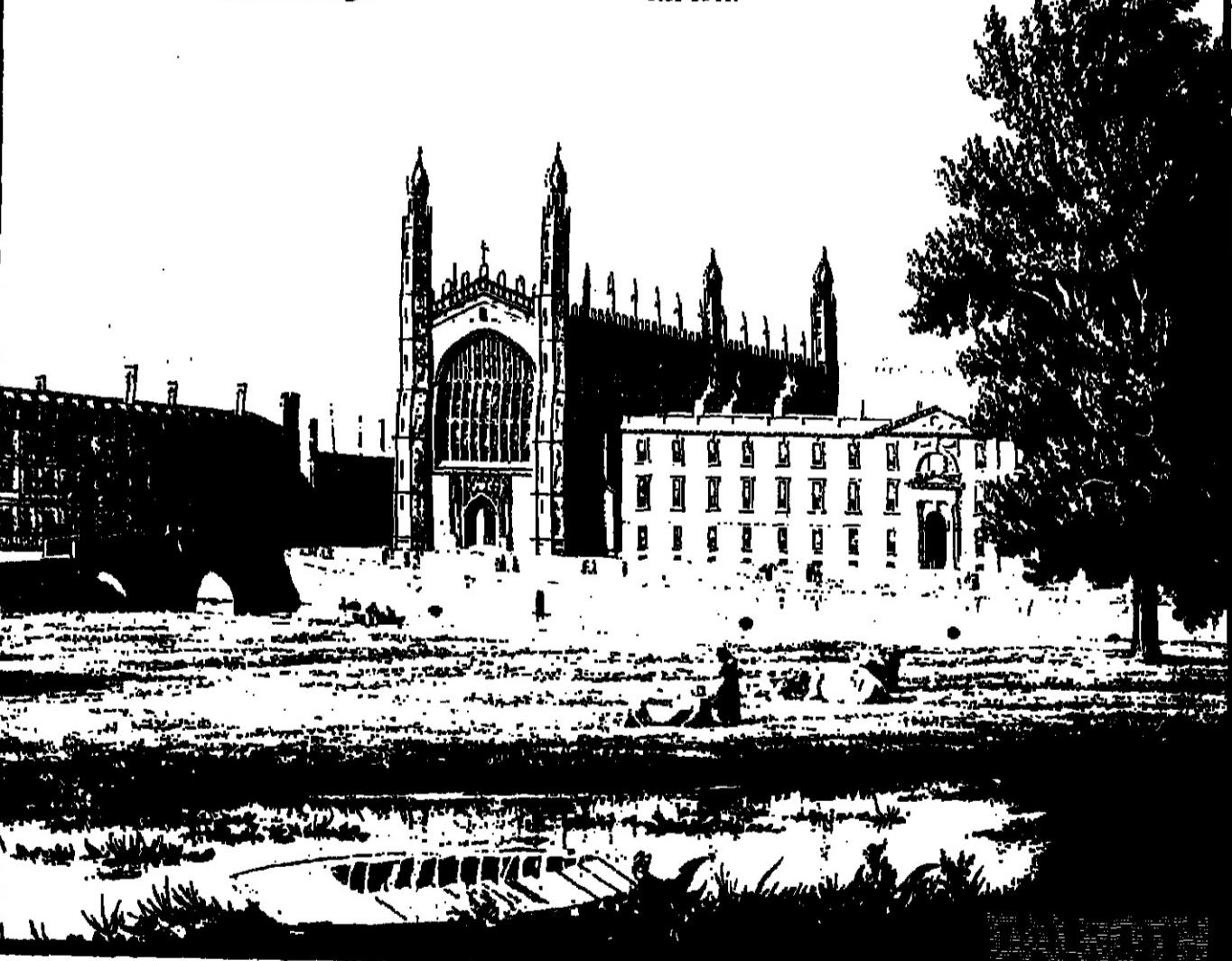
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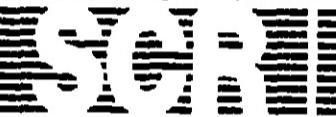
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Brussels 1050 Brussels
010 322-840 7181/71

HOLLAND
Willemsparkweg 92,
1071 H.M. Amsterdam
010 3120-760947

Our Client is a subsidiary of a major Computer Services Group whose principal activity is the sale and distribution of microcomputer products. Established for 16 years, they can demonstrate high profitability and excellent growth.

The introduction of the IBM PC and exclusive distributorships for key IBM PC enhancement products is supported by a highly qualified team of technicians and engineers.

Our Client now seeks an additional pre and post Sales Support Engineer, qualified to at least HND level, with sound micro hardware and software experience together with practical experience of mainframe communications. An element of European travel may be required for this post.

A workshop based, Microcomputer Technician, with at least three years component level repair experience of Micros and peripherals, a knowledge of TTL logic and both floppy and hard disk technology will also be required to supplement a highly skilled team of microcomputer technicians.

Salary will be no obstacle to the right Candidates, and on offer is an excellent benefits package with excellent career prospects in a rapidly expanding environment.

For further information, telephone Trevor Money on 021-236 3781 (24 hour answering service) or 021-449 1870 (Evenings and Weekends).

PROGRAMMER c.£9,000

Derwent Publications, a company at the forefront of scientific and patents information services and with a world-wide clientele, have a vacancy for an enthusiastic and innovative young programmer.

The successful candidate will be of at least 'A' level standard with about four years' commercial experience (or a graduate with two years' experience) of IBM/COBOL with MVS and TSO/SPF. Tasks will include assisting in the development of new project work, maintenance and support of existing applications and considerable liaison with external bureaux. A competitive starting salary (neg. a.a.e.) will be paid and there is a range of other benefits. Career prospects are good in an expanding and increasingly important department of a flourishing business.

Write with full c.v. to:

Mr V. Lyon
Personnel Director
Derwent Publications Ltd
Rochdale House
128 Theobalds Road
LONDON WC1X 8RP



TSP

Technical Support People Ltd.

WITH SALES & MARKETING RECRUITERS LTD.

IBM

SYSTEM SOFTWARE SPECIALIST

WITH A TALENT FOR MANAGEMENT

This is an exceptional opportunity, not only because our client is an international manufacturer whose customer list looks like the 'Who's Who' of British industry, but also because it is a senior appointment that is the key to a unique departure in the marketing and installation of IBM based systems.

We are seeking an accomplished systems specialist, with a substantial record in project control and man management, who is truly conversant with IBM operating and database software, particularly VM/CMS. A high level of diagnostic skills is also essential.

The chosen candidate will be given the task of building a team of software specialists to trouble shoot at the implementation and operation levels and to support and train end-users. He/she will also be responsible for establishing a centre of excellence for IBM systems software support. The job will command national responsibility but will be located in the

HOME COUNTIES

It is expected that the first two months will be taken up with comprehensive

PRODUCT TRAINING IN THE U.S.A.

in order to be able to advise the company on its technical support strategy in anticipation of the new product launch in the spring.

This is a significant and senior appointment reporting directly to the head of Customer Services, and will attract a substantial remuneration package that is commensurate with the importance of this key appointment.

Money will not be allowed to get in the way of recruiting the right person for this job.

Please supply complete career details to Alex Middlestrass (London) or Alan Williams (Lichfield) quoting reference MTB/024.

LONDON & SOUTH MIDLANDS & NORTH

28 Oxford Street,
London W1. (01) 734 9778
Answering Service after 6 pm and weekends
SALES TRAINING, MARKET RESEARCH, RECRUITMENT

(7707)

SELECT YOUR NEXT CAREER MOVE

CENTRAL LONDON £11,000-£13,000

ANALYST/PROGRAMMERS PROGRAMMERS

COBOL CICS/DL1 - Training

A leading IBM User based at a very accessible Central London site is seeking to recruit programmers and analysts/programmers for their IBM 3800 MVS installation. The company are currently developing a range of new financial systems using CICS and DL1 and can offer excellent career development opportunities. Excellent benefits include a subsidised mortgage and a non-contributory pension.

Ref W1

UXBRIDGE/WEST MIDDLESEX £10,000-£12,000

NEW IBM COBOL PROJECTS

Our client very conveniently situated near the A40/M40 in West Middlesex is seeking to recruit PROGRAMMERS and PROGRAMMER/ANALYSTS to work on the development of commercial on-line database systems on IBM hardware. Training in on-line database techniques is available and candidates will need to offer at least two years' IBM COBOL. In addition to an excellent commencing salary the company are also able to offer an attractive range of employee benefits.

Ref W4

BRACKNELL, BERKSHIRE £12,000

SYSTEMS ANALYSTS COBOL PROGRAMMERS

Located in Bracknell, very accessible from the M3 and M4, our client, a large IBM user, is seeking staff to be engaged on a wide range of new CICS-DL1 based commercial projects. Programmers will need to offer at least two years' IBM COBOL. Job training in CICS DL1 available, and analysts should be capable of taking a project through all stages of development.

Ref W7

If you wish to apply for any of the above positions telephone or write now quoting the appropriate reference.

DP Selection Services, service offices in London and the surrounding counties. If you wish to discuss your career move requirements telephone one of our consultants for a confidential

HAMPSHIRE £18,000-£13,000 (+ Benefits)

COBOL, ANALYST/PROGRAMMERS

COBOL CICS/DL1 - Training

Several exciting career opportunities exist within this rapidly expanding IBM 4341 MVS environment where a new project development schedule has recently been agreed. If you can offer at least two years' IBM COBOL then training in CICS DL1 and MVS will be provided together with company benefits including low cost finance, a mortgage subsidy and a very attractive relocation package.

TO £14,000

PROGRAMMERS & PROGRAMMER/ANALYSTS

TANDEM - DEC VAX

If you can offer experience of systems and programming on TANDEM & DEC hardware, our client, a highly respected organisation developing new commercial and communications systems, can offer you challenging new project work. You will need to offer TANDEM TAL experience or DEC VAX ASSEMBLER and can look forward to receiving training to enhance your technical skills. Career development to system designer level exists and the company offer a range of attractive benefits.

Ref W3

SOUTH HERTFORDSHIRE £8,000-£13,000

PL/I PROGRAMMERS ANALYST/PROGRAMMERS

PL/I CICS and database projects are currently being developed by a major financial organisation using IBM MVS mainframes. You will need to offer at least two years' PL/I experience in a commercial environment and the company can offer training to develop your technical and analysis skills. An excellent range of employee benefits are available including non-contributory pension and a subsidised restaurant.

£11,000-£13,000

SYSTEMS ANALYSTS

Our client, a very successful IBM User developing systems for the insurance market, now wish to recruit SYSTEMS ANALYSTS to take responsibility for new commercial/financial projects. These systems will utilise on-line and database software and therefore experience in these areas will be a great asset. If you are seeking a new challenge in systems development with a progressive, lively company then our client can offer you an excellent career opportunity.

Ref W6

CITY OF LONDON £12,000

ANALYSTS - FINANCIAL/BANKING PROJECTS

A major international bank located in the City is about to embark on a wide ranging development of systems for the financial sector. Senior Systems Analysts are now sought to take project responsibility for systems which will require extensive user group liaison. Candidates must offer several years' systems experience preferably including IBM knowledge and will be capable of project leading.

£12,000

Ref W9

If you wish to apply for any of the above positions telephone or write now quoting the appropriate reference.

DP Selection Services, service offices in London and the surrounding counties. If you wish to discuss your career move requirements telephone one of our consultants for a confidential

7 Swallow Street, London W1R 7HD
We look forward to hearing from you.

01-434 2042
24 hour Answerphone

(7707)

EPOS SYSTEMS

We currently require five experienced Analyst/Project Leaders for major EPOS development projects. Career prospects are excellent.

KPG
01-948 5922

Ring David Mason Johns at KPG now for an interview

(7707)

MASSCOMP

We are a young fast growing computer company specialising in technical computing, real time systems, including unique data acquisition capabilities and high performance graphic workstations.

To start our sales and support activities in the United Kingdom we are inviting applicants for the position of:

UK SUBSIDIARY MANAGER

The successful candidate will have many years of experience in the UK scientific/technical market, both OEM and end user, and is expected to hold a senior sales management position in his current company.

Compensation package and equity position will be commensurate with the importance of the assignment.

Please send your resume to:

MASSCOMP EUROPE BV
TARWEKKIER 10 8941 L.B. DOORN, HOLLAND
or call MR. HANS STEENMAN on 03430 14045

(7707)

An International Assignment With a Difference

DEC Engineers S. Africa Excellent Benefits

If you happen to be one of the DEC engineers that we are looking for, you could be alongside a crystal clear pool with a bee in your hand, or maybe indulging in your favourite outdoor week-end activity. These are just some of the perks that we, the leading supplier of DEC systems in South Africa can offer you.

You should have had at least 3 years hardware support experience on DEC 11/70, VAX 750 and VAX 780 range of CPUs, have peripherals qualifications consistent with regional support capabilities and be prepared to enter a two year agreement or alternatively be

considering permanent residence in South Africa.

We are a well established international organisation who, in exchange for your qualifications, can offer a £15,000 p.a. package, benefits which include excellent career prospects, job satisfaction, excellent pension fund, medical aid and car scheme, a renewable contract or permanent post, return air fares and relocation allowance as well as initial accommodation.

If you would like to consider a move to sunny South Africa, in the first instance, telephone or write for an appointment to our consultant,



JWG Advertising Limited

RANK XEROX

Make our International Data Centre part of your career.

Systems Programmers to £15,000

To build, develop, technically maintain and modify as required, software systems in support of Data Centres throughout Europe. 3 years' IBM systems programming experience is required with extensive MVS involvement and one or more of the following: TSO, JES3, ROSCOE, IMS, ACF/VTAM, RACF. Ref: 44185/CW.

System and Software Consultants to £15,000

These consultancy support roles provide a technical guidance and problem solving capacity to domestic and international users of the full range of IBM software products. The required experience is at least 2 years' OS and Assembler and a working knowledge of some of the following: MVS/SP, TSO, ISPF, FOCUS, JES3, RACF, ROSCOE, IMS DB/DC, ACF/VTAM, DATAMANAGER, EASTRIEVE. Ref: 44186/CW.

IBM SYSTEMS SOFTWARE AND SUPPORT

up to £15,000, North London

Rank Xerox Ltd is the undisputed market leader in copiers and duplicators, whose products and business systems incorporate state of the art technology. Internationally successful, with turnover in excess of £1.3 billion and profits over £100 million, it is a subsidiary of the US\$8 billion Xerox Corporation.

The International Data Centre in Bushey provides software systems support and development, batch and on-line processing and voice and message telecommunications facilities for operating divisions and subsidiaries. The network is substantial, extending throughout the UK and Europe, to Africa, the Far East, Australasia and the USA. IBM mainframes, including a new 3083, operate under MVS/JES3.

This is part of a major exercise to attract talented people looking for career development, security, extensive training and managerial prospects. Salaries and positions are just an indication of the areas and levels required. If you are an IBM specialist and believe you have experience and ability suitable for the company, we would like to hear from you.

Hoggett Bowers
Executive Selection Consultants

We are easy to get to

Bushey benefits from first class road and rail links. The surrounding area offers a wide variety of housing accommodation, with excellent shopping, sports and recreational facilities.



How to apply

Candidates should submit their CV, quoting the appropriate reference number, or complete and return the reply box or telephone for an application form to: A.D. Kelly, Hoggett Bowers & Partners, Sutherland House, 5/6 Argyll Street, London W1E 6EZ. Tel 01-734 8852.

LOCAL INTERVIEWS WILL BE ARRANGED.

NAME _____
ADDRESS _____

REF No _____

FOR PROGRAMMERS OPPORTUNITIES IN COMMUNICATIONS £9-£13.5K

Communications is the fastest growing and most exciting sector of the computer industry. Our client is continually demonstrating its expertise in the implementation of voice response, viewdata and associated communication and network systems. This has led to an impressive list of major companies throughout the UK and Europe who have chosen our client's products as the best available for their needs.

Opportunities have arisen for a Senior Programmer and Programmer to become involved in the development of exciting new communications products. Those seeking real responsibility will see projects through from feasibility to implementation and have the opportunity to provide some sales support to customers.

Working in a small, friendly and informal environment will ensure that endeavour and application are instantly recognised and subsequently rewarded.

Experience of communications software development is essential for the more senior position. Successful applicants will have:

- Experience of Assembler languages, preferably DEC MACRO 11.
- Minimum of 2 years software development.
- High level of motivation.

Company benefits include regular salary reviews, excellent career prospects, free family medical insurance, generous pension scheme and relocation assistance where appropriate.

For further details please telephone Keith Taylor on Reading (0734) 595346 or write enclosing full c.v. to our Reading Office.

Interviews will be held in London and Reading.



MCCOURT COUSINS LTD.
Computer Recruitment Consultancy

2729 Greyfriars Road,
Reading, Berkshire,
Telephone (0734) 595346 (24 hours)

Chester House, 160 Regent Street,
London W1R 6PA.
Telephone 01-459 6290

Hardware Instructor £10,000+

Nixdorf Computer, a world leader in computer systems and services, seeks a hardware instructor with the flair and imagination to run a new UK training operation for engineers.

This is a position requiring experience in a similar field as well as the ability to use initiative in developing the role accordingly.

The successful applicant will be based at Nixdorf's Hounslow headquarters and will receive upwards of £10,000 depending on relevant experience, plus the range of benefits associated with a major international organisation.

Application Software Instructor

Nixdorf Computer also has a vacancy for an able lecturer in computer studies who wishes to broaden his/her experience by joining a progressive manufacturer.

Teaching our wide variety of customers to use our comprehensive range of application software requires many qualities. Nixdorf offers an attractive remunerative package to someone with:

- A good understanding of business accounting.
- Systems analysis and training experience.
- The personality to establish good relationships quickly.

Candidates with the ability and personality to fill these demanding posts should apply in writing with cv to:

Mr G Willis, Nixdorf Computer,

125-135 Staines Road, Hounslow, Middlesex TW3 3J8

**NIXDORF
COMPUTER**

In the UK and 33 other countries worldwide

PUBLIC SECTOR APPOINTMENTS

SOUTHWARK MICROTECH A MICROTECHNOLOGY TRAINING CENTRE

Southwark Council, plus a local charity and an international telecommunications organisation, are jointly sponsoring an MSC/DOLI-funded Information Technology Centre (ITC) which provides up to a year's training in the use and servicing of computers and related technology for forty 16- to 19-year-olds. The ITC will equip them with the necessary skills to get related employment and help them to keep it.

We are among the first centres of their kind and these opportunities provide an exceptional challenge. In order to help us maintain and promote this service and develop our team we need:

INSTRUCTOR

£8,382 to £9,087 (Scale 5)

You must be able to provide specialist training in the following areas: Software packages, programming and the operation of micro-computers.

The successful candidate will be required to motivate, assess and monitor the progress of young people of varying abilities in the use of information technology.

A sympathetic approach to young people and their problems is therefore essential.

This is a most demanding role which calls for considerable personal commitment and dedication; however, it can also be most rewarding to the right candidate. If you think you can handle it please contact Lesley Loizou on 01-928 8434 or write to:

Southwark Microtech
182/194 Union Street
London SE1 0LH

Last date for receipt of completed Application Forms: 24.2.84.

BRISTOL POLYTECHNIC

Construction & Environmental Health Department

Part-time Research Assistant – Cost and Resource Modelling – Ref No R/173

A Research Assistant is required to assist in the development of computerised time cost model for multi-activity projects in the construction industry with major resource constraints on a 2½-day per week basis, until the end of August, 1984.

The post would be suitable for graduates in Mathematics, Computing, Building Technology or Civil Engineering. The ability to write computer software is desirable for industrial/professional applications is essential. Previous research experience is desirable, but not essential.

SALARY SCALE: pro rata to £6,16-£8,123 per annum

For further details and an application form, to be returned by 17th February, 1984, please contact the Personnel Office, Bristol Polytechnic, Cold Harbour Lane, Frenchay, Bristol or ring Bristol 682611, Ext 216 or 217.

Please quote Ref No R/173 in all communications

UNIVERSITY OF BRISTOL DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING INFORMATION TECHNOLOGY IN ANALYTICAL LABORATORIES

Applications are invited for two posts of
Professional Research Assistant in the
Department of Electrical and Electronic
Engineering at the University of Bristol, to
undertake a three-year study funded by
the British Petroleum Company plc.

The work concerns the use of intelligent
instrumentation in analytical laboratories.
The successful applicants will be involved
with the design of a unified Local Area Network interconnecting a personal
computer and a number of intelligent
instruments.

Experience in one or more of the following
areas is essential

Distributed Systems
Local Area Networks
Real Time Processing
Pattern Recognition
Kalman Filtering

It is anticipated that suitable candidates
will have a background in Computer
Science or Electrical Engineering, but
Chemists with a computing interest will be
considered.

Applicants will be at a point on the 1A
scale, according to age and experience,
up to a maximum of £9,375.

Closing date for applications is March 1.

The appointments will start as soon as
possible after that date. Applications, in
writing, should be sent to Dr. M. H. Bar-
ton, University Engineering Laboratories,
University Walk, Bristol BS8 1TR.

(7775)

SCOTTISH WEST COAST HEALTH BOARDS

(a) Chief Computer Operator

£2,367-£10,277 per annum
(after a qualifying period an annual allowance of £554 may be payable).

This senior post requires candidates with several years' experience of working at a supervisory level in a medium to large computer installation preferably with ICL 1900 or 2900 systems, utilising the George 3 or VME 2900 operating systems. A knowledge of telecommunications networks would be an advantage.

(b) Intermediate Programmer

£2,404-£9,225 per annum
(after a qualifying period an annual allowance of £277 may be payable).

At least two years' relevant experience is required for this post. Experience of ICL COBOL and familiarity with the use of ICL software is essential. Knowledge of George 3 and/or VME 2900 would be an advantage.

Both posts are based in modern offices near the centre of Paisley, minutes from the motorway and mainline railway stations. The ICL 1903T computer system currently in operation is in the process of being replaced by an ICL 2986 system, providing concurrent use of VME 2900 and George 3 operating systems.

The Department services the Argyll and Clyde, Ayrshire and Arran, Dumfries and Galloway and West of Scotland Health Boards in providing a wide range of financial services such as an integral part of the Information Services Division processes a comprehensive range of information for Health Care planning and management. The Health Boards have a number of mini computers in Hospital Laboratories and administration and an expanding data communications network.

Application forms and further particulars regarding above posts may be obtained from the Area Personnel Officer, Argyll and Clyde Health Board, Gilmour House, Paisley PA1 1DU (telephone: 041-887 0131, extension 322), to whom completed applications should be returned not later than February 24, 1984.

(7785)

THE UNIVERSITY OF BIRMINGHAM

Administrative Data Processing Unit

The following staff are required:

DEPUTY DATA PROCESSING MANAGER

£15,515-£16,216 p.a.

A high calibre professional to lead the payroll/personnel project group and to have overall responsibility for the co-ordination of developments within the unit. Wide experience of all aspects of data processing essential.

SENIOR SYSTEMS ANALYST

£21,160-£21,425

A Senior Systems Analyst to head developments in the student admissions and records area. A detailed knowledge of current on-line techniques is expected; previous experience in personnel record systems an advantage.

SYSTEMS ANALYST/PROGRAMMER
£6,310-£6,616 p.a.

A well-qualified Systems Analyst/Programmer to improve cost control systems in the estates and buildings office. Minimum of two years' programming (preferably Cobol or Transact) and 12 months' systems analysis experience essential.

PROGRAMMERS

£6,310-£6,676

Additional Programmers are required, each normally to work within a specified project area. Minimum of 12 months' programming experience, preferably in Cobol, required.

Salaries are subject to review in April. Familiarity with HP equipment an advantage.

Enquiries to Mr. A. Todd, Data Processing Manager (Tel. 021-472 1301, Ext. 3192). Further particulars and application forms, returnable by February 25, are available from the Senior Assistant Secretary, University of Birmingham, PO Box 363, B18 2TT.

(7786)

Harrogate Borough Council COMPUTER SERVICES OFFICER

Salary £12,408 to £13,728 per annum

The Council wish to engage, for this new post, the services of an enthusiastic data processing professional to assist in the formulation of the future strategy of the computer function, to investigate and evaluate the options and to co-ordinate the development and implementation of procedural information and control systems across all areas of the Authority.

Existing facilities include an ICL ME29, a range of local terminals (which is scheduled to be extensively expanded) and distributed computerised cash receiving facilities. In addition to which extensive use is made of the County Council's twin 2976 mainframe.

Applications are invited from persons with relevant qualifications (additional BCS or IDPM an advantage). Experience in telecommunications and related technologies desirable and a knowledge of ICL distributed systems and experience in Local Government would be advantageous. Assistance with resettlement expenses in appropriate cases and temporary housing accommodation may be available.

Application forms and further details are available from the Personnel Officer, Harrogate Borough Council Offices, Harrogate, North Yorkshire HG1 2BG. Tel: (0423) 68824 ext. 266. Closing date 24 February, 1984.

(7742)

TRENT POLYTECHNIC COMPUTING SERVICES

CHIEF SYSTEMS PROGRAMMER

£10,761-£12,087

To lead a team of four responsible for the smooth running of systems software on the central Polytechnic computers (DEC 2080, VAX and IBM System 38). Experience in system programming, low-level languages or communication networks, etc., would be advantageous.

Further details and form of application are available from the Staff Officer, Trent Polytechnic, Burton Street, Nottingham NG1 4BU. Closing date February 24, 1984.

(7771)

SOMERSET COUNTY COUNCIL EDUCATION DEPARTMENT

Information Technology Centre, Somerset College of Arts and Technology, Collinson Centre, Taunton

SENIOR SUPERVISOR and SUPERVISOR (KEYBOARD/OFFICE/FOSSIL)

Recruit is now available for the Information Technology Centre. The Centre which is sponsored by the Somerset College of Arts and Technology under the Youth Training Scheme, is largely funded by the Manpower Services Commission with

PUBLIC SECTOR GLC

Working for London

Computer systems and traffic control applications

The operation of Greater London's urban traffic network is continuously being reviewed and updated, using TRANSYT 8 and SCOUT adaptive control where appropriate. A new traffic control system and pedestrian and automatic reporting of signal faults are currently being introduced and a new central computing facility supporting all signal control, monitoring and operating functions is underway, involving VAX and PDP mainframes, a local area network, and many software developments.

To meet the increasing emphasis on this work, we wish to appoint two senior managers:

Head of Systems & Software Traffic Control Applications Manager

To take responsibility for the effective review of these measures, in traffic terms, and for the development of the necessary control systems.

Applicants should be Chartered Engineers or equivalent and have at least 5 years appropriate management experience in on-line computer control systems or traffic control engineering.

Salary £14,000-£16,776 inclusive.

For application form, to be issued by 17th February 1984, write to: Transport Dept., The Local Government Commission, 10th Floor, The County Hall, Merton Park, London SW19 8JL. Tel: 01-613 7291.

These posts are suitable for job sharing.

The GLC is an equal opportunities employer.

The GLC is an equal opportunities employer.

Waltham Forest College

Principal Lecturer in Computing

The post of Principal Lecturer responsible for the leadership and development of the Computer Unit is tenable from 30 April 1984.

Salary - £13,164-£16,389 per annum inclusive.

Application forms and further details available from the College Personnel Services Officer, Waltham Forest College, Forest Road, Walthamstow, London E17 4JB.

Tel. No. 01-527 2311 Ext. 264.

Closing date 21 days from appearance of advertisement.



AIR QUALITY OPPORTUNITIES EMPLOYER

ABERDEEN UNIVERSITY COMPUTING SERVICES LTD (AUCS)

Applications are invited for a newly created

PROGRAMMING POST

AUCS activities include software development, maintenance, documentation, consultancy, with a considerable involvement in distributed systems and applications. AUCS works closely with the University Computing Centre, whose hardware includes VAX 11/780, VME, VMEbus, VMEbus II and various microcomputers. Languages used include FORTRAN, COBOL and software development languages.

Applicants must have programming experience and the ability to adapt easily to a wide variety of client needs. Qualifications include a post-graduate or honours degree and relevant experience.

Appointment will be for three years with the possibility of extension. Salary will be £12,180-£16,811.

Applications should be sent to: Mr. J. C. Scott, Director, AUCS, 100 George Street, Aberdeen AB2 2AA. Tel: 0224 62211, ext. 6100, to whom applications should be sent by February 27, 1984.

(777)

GREATER GLASGOW HEALTH BOARD

A. SENIOR SYSTEMS DESIGNER/PROJECT LEADER

£34,044-£11,454 PER ANNUM

B. SYSTEMS DESIGNER

£26,367-£16,277 PER ANNUM

Applications are invited for the above posts in the board's computer centre which is located at 226 Bath Street, Glasgow. The centre is equipped with an ICL 2986 computer and processes a wide range of applications for the Health Service. Both posts are for the Scottish standard immunisation recall system. The successful candidate for post A will be responsible for the project team development of the system and will therefore require considerable experience in computing and proven ability to design and install complex systems. Previous experience in a hospital environment would be an advantage.

Candidates for post B should have had relevant experience and a good educational background.

Additional allowances may be payable for relevant experience.

Application forms and job descriptions may be obtained from the Area Personnel Officer, Greater Glasgow Health Board, 226 Bath Street, Glasgow G2 4JT. Tel. No. 041-204 2755. Ext. 2600 to whom completed forms should be returned not later than Friday, March 2, 1984.

Please state clearly for which post you wish to apply.

ELLA THOMPSON
REX STEWART + ASSOCIATES
DIRECT LINE 041-204 1776
776844 REXCOO D

SMR

Sales & Marketing Recruiters Ltd

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MICROCOMPUTERS SALES AND SALES SUPPORT

THIS COULD BE THE START OF SOMETHING BIG!

Probably the most sought after job opportunities as far as accomplished and ambitious salespeople are concerned is the chance to join a major foreign company with an outstanding product range who is just setting-up in the U.K. The implications of the 'ground floor opportunity' are obvious. However it is not very often that such a situation occurs involving a multi-national company with revenues in excess of £500 millions and employing over 25,000 people worldwide!

So determined is our client to succeed, that the investment in U.K. manufacturing facilities has trebled within the last two years. Early success has already been achieved and the product/quality performance may be judged by its rapid revenue growth.

This company is about to launch a powerful range of home and business microcomputers with performance and prices that will amaze you, supported by application packages and a comprehensive range of languages, system utilities and operating software.

Requirements now exist

THROUGHOUT THE U.K.

AREA SALES MANAGERS

Candidates should be directly experienced and successful salespeople who are currently selling microcomputers to Dealers, Distributors, Specialist Computer Retailers, Major End-Users, etc. They will be self-motivated and industrious individuals, able to create and implement sales strategy and manage a small team of sales and technical support people. An attractive compensation package will be offered including a guarantee against commission earnings and a company car is provided. Territories are available throughout the U.K.

SALES SUPPORT ANALYSTS

Candidates should have substantial experience of either the business or home microcomputer market and able to handle the technical requirements of distributors, retailers and large-scale end-users. Knowledge of CPM and BASIC is essential and fluency in commercial applications will be advantageous. Opportunities exist throughout the U.K., an attractive salary will be paid and a company car is provided.

SALES TRAINEES

These opportunities will appeal to those young people with obvious flair for selling who have significant experience of utilising microcomputers or are already involved in marketing or merchandising to distributors, retailers, etc. The job entails the provision of sales and marketing support, including the operation of varied promotional campaigns to a wide selection of clients and reports to the local Area Sales Manager. Opportunities exist throughout the U.K., an attractive salary will be paid and a company car is provided.

All these excellent job opportunities carry considerable fringe benefits, a company pension, but above all they offer considerable potential for job satisfaction, high earnings and career advancement.

Please provide complete career details to Roger Dodd (Midlands and North) and Lindsay Howie (South) quoting reference SDB/024.

LONDON & SOUTH
29 Oxford Street,
London W1 101 734 9776
Answering Service after 6 pm and weekends
SALES TRAINING MARKET RESEARCH RECRUITMENT

MIDLANDS & NORTH
Cathedral House, Beacon Street,
Lichfield, Staffs. (05432) 56612
Answering Service after 6 pm and weekends
SALES TRAINING MARKET RESEARCH RECRUITMENT

SMR

Sales & Marketing Recruiters Ltd

Leaders in High Technology Recruitment

SALES EXECUTIVES COMPUTER AIDED ENGINEERING HARDWARE & SOFTWARE SYSTEMS

It's nice to have the opportunity of satisfying the recruitment needs of a fast growing international organisation whose name is a by-word for innovation and product integrity, a reputation that is synonymous with all that is excellent in technological progress, a name that implies instant credibility. Such is our client, a company with manufacturing capabilities that extend from computer systems to micro-chips and more particularly, very special skills in the provision of integrated CAD/CAM systems (CAE if you prefer it!).

The last 3 months have been the most successful in the company's history and continuing growth has now created the need for additional salespeople to sell Computer Aided Engineering Systems to mechanical engineering and manufacturing organisations throughout

MIDLANDS & NORTH SOUTHERN ENGLAND

Candidates are likely to be currently employed in selling CAD/CAM systems for a recognised major supplier or involved in the provision of engineering related computer services, preferably with an engineering qualification. Sales targets are relatively low for this sector of the market place and anticipated on target earnings will be

£32,000 + COMPANY CAR

Please contact Alasdair Scott (London), or Roger Dodd (Lichfield), quoting reference SSA/024.

This job is available to both men and women.

LONDON & SOUTH

29 Oxford Street,
London W1. (01) 734 9776

MIDLANDS & NORTH
Cathedral House, Beacon Street,
Lichfield, Staffs. (05432) 56612
Answering Service after 6 pm and weekends
SALES TRAINING MARKET RESEARCH RECRUITMENT

Minicomputer Operator

...with Systems Analysis ability

Manchester

This interesting job at Wilson's Brewery demands a competent and intelligent computer operator with the ability to progress quickly towards the analysis, design and implementation of micro based projects. We currently use Data General Eclipse and Novell minicomputers and a range of IBM and Apple microcomputers.

Aged around 25 you should have a good academic background (degree/National Diploma) and sound training in Management Services, Systems Analysis or programming.

A two shift system is being worked - for which a shift premium is paid.

An attractive salary is offered together with a discretionary bonus and the usual benefits associated with a progressive company.

Write with full career and salary details to:
Mr J. Dale, Senior Personnel Officer,
Wilson's Brewery Limited, Monsall Road,
Newton Heath, Manchester M10 8PA.

WILSON'S

Chr. Michelsen Institute is an independent multi-disciplinary research institute which serves industry and society in Norway and abroad. The work of the Institute is financed by means of government grants and by R & D Contracts.

CMI's dept. of science and technology has a staff of 105, most of whom are graduate scientists or engineers.

COMPUTER GRAPHICS/ANIMATION

Applications are invited from highly qualified and suitably experienced persons for a position in computer graphics and animation. Applications with a Ph.D or M.Sc in computer science will be preferred.

Research activities in the dept. of science and technology are concentrated in the following areas:

- Powder technology, dust and gas explosions
- Instrumentation and measurement technology
- Remote sensing and image processing
- Signal processing, including seismic interpretation
- Mechanical design and precision engineering
- Electronic design

Many of our projects in these fields utilise computers for simulation, data reduction, and design purposes. In order to enhance our ability to interpret and understand computer output, we plan to expand our use of computer graphics and animation techniques. Further details of this challenging appointment can be obtained from Haakon Helland at CMI. Deadline for applications is February 20, 1984.

CMI offers competitive salaries and an attractive work-place on the outskirts of Bergen, on the west coast of Norway. The Institute will assist in obtaining suitable accommodation. Applications, accompanied by curriculum vitae, should be sent to the Director, Dept. of Science and Technology,
Chr. Michelsen Institute,
Falkum, Bergen, Norway.
Tel: +47 52 24410. Telex: 40008 CMI-N

SALES BIT

Quality of Management - 82

An ignorant salesman is a walking disaster

FOR many companies, the only form of training that ever occurs is product training, which is usually limited to a few days for new recruits or for the salesforce at large prior to the launch of a new product.

This is not sufficient. The emphasis must always be upon balanced training, for only in this way can a complete salesman be produced.

As 1984 is the 200th anniversary of the death of Samuel Johnson, I would like to start out by quoting him on the subject of knowledge, and more particularly, in the context of the most precious of qualities, professional integrity: "Integrity without knowledge is weak and useless, and knowledge without integrity is dangerous and dreadful."

First of all, let's consider the question of product knowledge by way of an extract from my book, *All About Selling*:

"There are many reasons why familiarity with one's product and its applications is important, and none more so than the self-confidence that it generates. There is no point in taking up any job if one cannot feel 100% committed to it; and it is not really feasible to enjoy a job without having the confidence of knowing what it's all about."

"Knowledge is a great professional strength that quickly earns not only the respect and admiration

of both clients and colleagues, but also makes sales success so much easier. I know many salespeople who are successful, despite the fact that they are not particularly good at selling.

"Their secret is that they know so much about their product, and the ways in which it can be used, that people virtually give them the business because they feel assured that someone so familiar with the subject will get the solution right with that, with one major qualification, that the company concerned has the resources and commitment to thoroughly train such recruits in product applications and selling knowledge."

Unfortunately, this is seldom the case and for many, the financial pressure to get new salespeople out on the road and earning money is quite considerable.

Consequently, salespeople fresh out of photocopiers, stationery, franking machines, typewriters and the like, find themselves out in the world advising people on the extremely serious implications of the computerisation of their business problems, within days of entering the computer business.

This situation puts the credibility of the industry at great risk. All suppliers of computer systems that put their sales people out on the road without them having complete knowledge of their product and its applications, have on their hands an unexploded bomb that is likely to bring disaster upon their unsuspecting customers and possibly upon themselves.

I can think of nothing more horrendous in selling than the blind leading the blind. The act of both buyer and seller believing in the panacea that is the basis of the transaction.

PUZZLE ANSWER

ONE die is standard, and the other has three six-faces and three blanks.